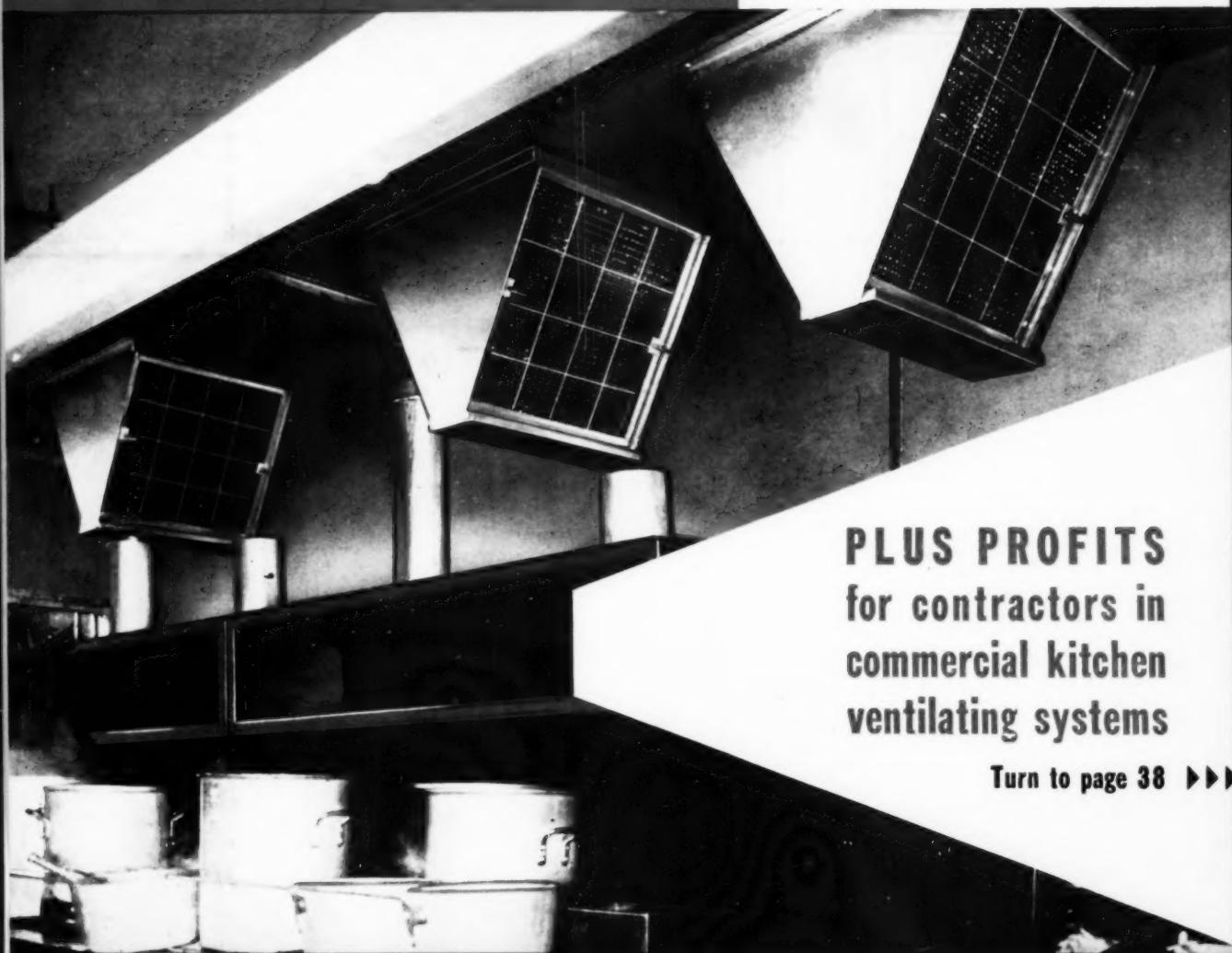


COMMERCIAL REFRIGERATION & AIR CONDITIONING

JULY 1953

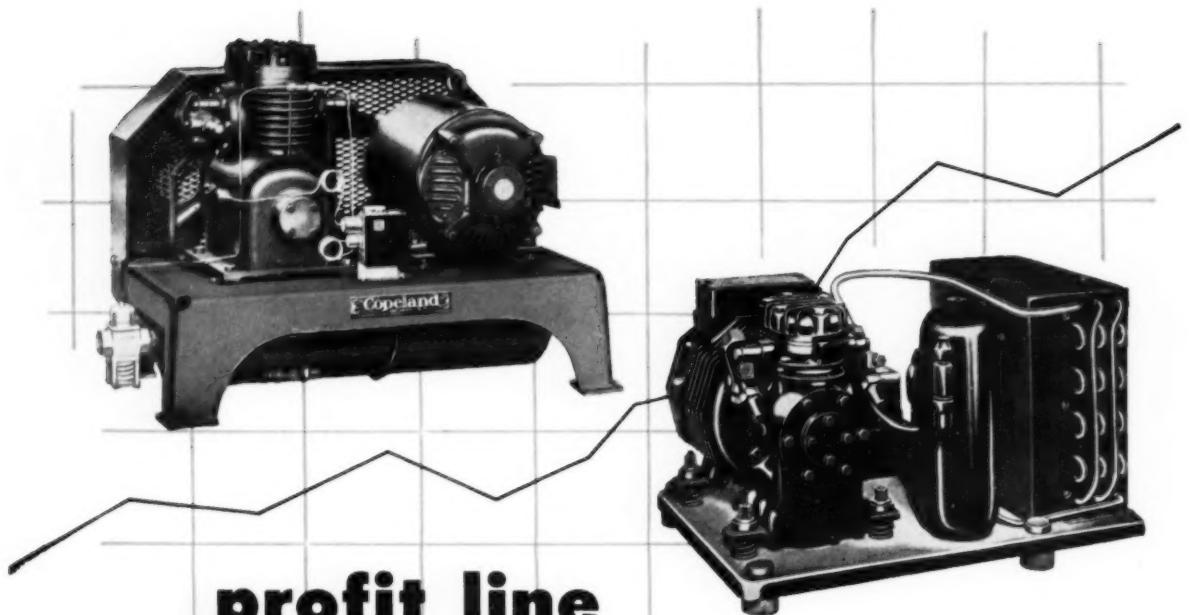
- How To Profit From Handling Used Merchandise
- Commercial Air Conditioning Can Pay For Itself
- Making Leak-Proof Joints In Copper Water Tubing
- Service Slants On Room Air Conditioners



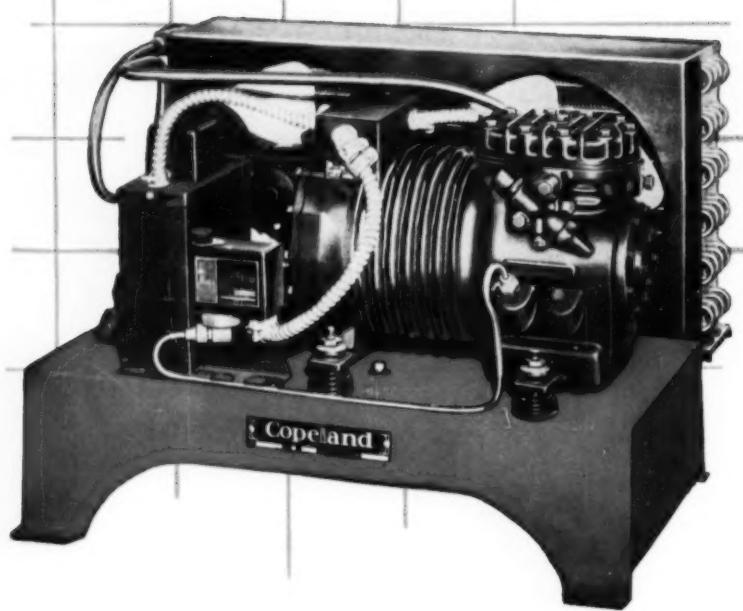
PLUS PROFITS
for contractors in
commercial kitchen
ventilating systems

Turn to page 38 ►►

MERCHANDISING, SELLING, INSTALLATION AND MAINTENANCE OF
AIR CONDITIONING AND COMMERCIAL REFRIGERATION EQUIPMENT



profit line



We're not crystal ball gazing when we tell you the Copeland complete refrigeration line can be your profit line for 1953. We've seen hundreds of dealers and jobbers succeed with Copeland, building their prosperity on three solid facts.

First, the Copeland line offers a unit for every size and type job. Air-cooled, belt-driven models range from $\frac{1}{4}$ through 3 HP, water-cooled from $\frac{1}{2}$ through $7\frac{1}{2}$ HP. Copelametic, the accessible hermetic, is available from $\frac{1}{6}$ through $7\frac{1}{2}$ HP.

Second, Copeland's long-standing reputation for recognized quality insures recommendations and repeat sales.

Third, extensive and hard-hitting national advertising pre-sells your prospects, creates a ready acceptance to cash in on.

Display and sell the complete Copeland line — your Profit Line for '53.



Copeland
DEPENDABLE *Electric* REFRIGERATION

REFRIGERATION UNITS (OPEN-TYPE AND COPELAMETIC) WATER COOLERS



COPELAND REFRIGERATION CORPORATION • SIDNEY, OHIO

Circle No. 1 on Reader Service Card



You can mount Alco 402 Valves in any position that's handy... in any location that's easy to reach.

Reason: They're liquid charged and work equally well *upright, sideways, upside down*... in or out of the refrigerated area.

Easy to install—YOU SAVE WORK

Simple to service—YOU SAVE TIME

Pressure limiting—YOU SAVE MOTORS

Compact size—YOU SAVE SPACE

ANY ANGLE IS THE RIGHT ANGLE

for installing
ALCO 402 THERMO VALVES



SEVERAL CONVENIENT SIZES
NOW AVAILABLE!

Freon-12— $\frac{1}{4}$, $\frac{1}{2}$ and 1 Ton

Freon-22—.4, .8 and 1.6 Tons

Methyl Chloride— $\frac{1}{2}$, 1 and 2 Tons

**ALCO 402—THE SMALL-FIXTURE VALVE—
ENGINEERED FOR SERVICE ENGINEERS**

SEE YOUR ALCO WHOLESALER



ALCO VALVE CO.

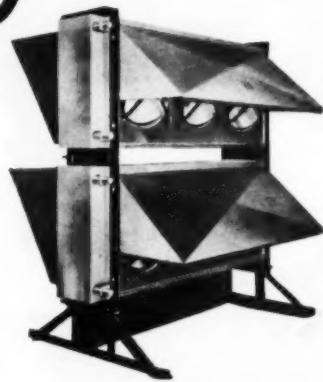
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Designers and Manufacturers
of Thermostatic Expansion
Valves, Evaporator Pressure
Regulators, Solenoid Valves,
Float Valves, Float Switches.

5672



Eliminate all water problems with UNICON by KRAMER. Any size compressor, regardless of tonnage, can be air-cooled with UNICON.



15 TON

UNICON*

by **KRAMER**



20 TON

Stands, hoods, and wind deflectors
are available for simplified
outside mounting
You need nothing else!

WRITE FOR BULLETIN U-210

*PATENT PENDING

KRAMER TRENTON CO. • Trenton 5, N.J.

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JULY, 1953 • COMMERCIAL REFRIGERATION

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COMMERCIAL REFRIGERATION & AIR CONDITIONING

JULY, 1953

VOLUME 10, NO. 7

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"Pressure will be back to normal in a few minutes"

Cooling towers, "evaps" and condensers get their headaches, too. One symptom is high head pressures, usually caused by accumulations of scale, slime and algae in the water-cooling equipment. Cooling efficiency drops—costs go up. A good remedy is a stiff dose of Solvex* Cleaner Tablets, which can be used while the machine is working. Head pressures usually return to normal in 15 to 45 minutes.

The way to prevent such troubles is to use Solvex Maintenance Tablets regularly. Solvex is quite safe—no acids or alkalis to harm

the operator or ruin expensive equipment. Solvex Cleaner and Solvex Maintenance Formulas also are obtainable in granular bulk (grains) for larger jobs.

Virginia Smelting Company distributes two other Solvex products of interest to the industry. One is "CC" Coating, a waterproofing and rust-preventive compound—excellent for use where galvanizing has failed. The other is Ice Machine Cleaner Powder—for eliminating the lime, grease and dirt which cause machines to turn out opaque, bad-smelling and bad-tasting ice.

Circle No. 4 on Reader Service Card

See your wholesaler, or write to
VIRGINIA SMELTING COMPANY
Dept. 64, West Norfolk, Va.

*Manufactured by the
CHEMICAL SOLVENT CO., Birmingham, Ala.

VIRGINIA
Refrigerants

ESOTOO • KINETIC CHEMICAL'S "FREON" REFRIGERANTS
V-METH-L • CAN-O-GAS • PERMAGUM • PRESSITE TAPE
SOLVEX PRODUCTS • SUNISO REFRIGERATION OILS

The POWER
that Builds Reputations

Peerless

PREMIUM-BUILT ELECTRIC MOTORS

No greater compliment can be paid a motor than to call it Peerless. The men who build, sell and service America's finest mechanical equipment know what we mean.

"Service" by our representatives; "knowledge" of Peerless engineers; "skill" of its manufacturing personnel; and, "responsibility" of Peerless top management result in a motor with that extra something.

Yes, The Peerless Electric Company is proud to build motors with that extra something . . .

That's why we call the Power That Builds Reputations.



Peerless
Electric

Circle No. 5 on Reader Service Card

and AIR CONDITIONING • JULY, 1953



MODEL ACT
Capacities 8 to 60
tons. 25 ton unit shown.

EASE OF INSTALLATION: Acme's compact, pre-assembled, packaged units simplify field erection since they are ready for either indoor or outdoor service when they leave the factory; choice of air discharge direction with either front or rear air intake allows you to fit the job with minor field adjustments. A complete selection of pumps is available. They are integrally mounted and piped at the factory.

Acme

has what you
are looking for in

COOLING TOWERS

top performance: Induced draft by means of centrifugal type fan wheels, dynamically balanced for smooth, quiet, efficient operation, assures constant capacity at all times regardless of wind conditions.

Acme's heavy duty all metal eliminators produce maximum changes in direction of air flow while removing entrained water droplets with low static loss. The new heavy gauge steel "Acme-Pak" is designed to provide the maximum in cooling effect.

Both the eliminator and pack are encased in a tight fitting exterior framework resulting in quiet operation and the prevention of air leakage, assuring efficient performance.

durability: Acme's completely galvanized construction of heavy gauge steel and die formed structural panels provides extra strength, extreme rigidity, freedom from vibration and long trouble-free life.



MODEL JCT
Capacities 3 to
10 tons. 7½
ton unit shown.



ACME INDUSTRIES, INC.

JACKSON, MICHIGAN

Mfgs. of a complete line of Air Conditioning and Refrigeration Equipment



Evaporative Condensers
Cooling Towers
Floor-type Unit Coolers



Direct Expansion
(Dry-Ex) and Flooded
Liquid Chillers
Heat Exchangers,
Oil Separators



Shell and Tube, Shell
and Coil Condensers
Receivers, Pipe Coils



Packaged Liquid
Chillers to 225 tons



Flow-Temp Heat
Pumps
Flow-Cold Liquid
Chillers



Remote Room
Conditioner

Continuously serving the refrigeration and air conditioning industry since 1919

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JULY, 1953 • COMMERCIAL REFRIGERATION

SEE—

Tecumseh

**FOR A FULL LINE OF
REFRIGERATION EQUIPMENT**

HERMETIC

Compressors and units from $\frac{1}{8}$ to 2 H.P. in all usual back pressures.

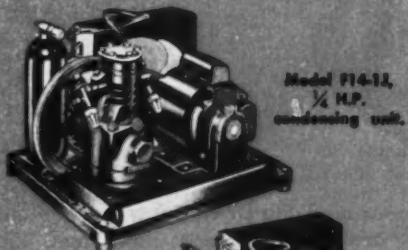


Model S301E,
 $\frac{1}{8}$ H.P. static
condensing unit.

Model C2213,
 $\frac{1}{2}$ H.P. twin
cylinder compressor.

SELF-CONTAINED

Units covering the range from $\frac{1}{8}$ to $\frac{1}{2}$ H.P. in all back pressures.



Model F14-12,
 $\frac{1}{2}$ H.P.
condensing unit.



Model F15-21,
 $\frac{1}{2}$ H.P.
condensing unit.

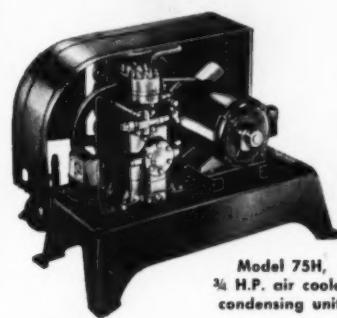
FOR THE FIRST TIME THE FULL LINE OF TECUMSEH HERMETIC AND OPEN TYPE EQUIPMENT IS AVAILABLE TO THE DEALER TRADE

Take a close look at these units and compressors now being offered the dealer trade. Here you will find a compressor or unit to meet most refrigeration applications up to 15 H.P. With one line you can supply hermetics from $\frac{1}{8}$ to 1 H.P. for domestic and commercial replacement applications, self-contained units for commercial installations up to $\frac{1}{2}$ H.P. and remote units up to 15 H.P.

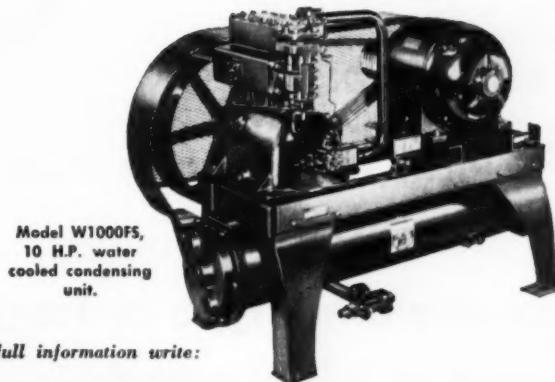
Also consider the fact that this line includes all the latest advancements in refrigeration design such as: oil pumps for pressurized lubrication, high speed operation, multiport suction and discharge valves and many others too numerous to enumerate.

We suggest you investigate the selling features of this line and see how you can cash in with the most complete line in the industry.

REMOTE



Model 75H,
 $\frac{1}{4}$ H.P. air cooled
condensing unit.



Model W1000FS,
10 H.P. water
cooled condensing
unit.

For full information write:



TECUMSEH PRODUCTS
TECUMSEH, MICH. *Company*

EXPORT DEPT.: 2111 WOODWARD AVE., DETROIT, MICH.

The world's largest
producer of condens-
ing units for the re-
frigeration industry.

HIGHER EFFICIENCY • GREATER CAPACITY • FASTER PICKUP



**ANSUL
T-FLO DRIER
WITH
ANDRITE
THE HIGH-SPEED DESICCANT**

**Picks up moisture faster...
holds more moisture longer...
than any other type or form of
desiccant or refrigerant drier.**

Buy them at leading refrigeration wholesalers everywhere

Ansul T-Flo Driers are new in design, new in appearance and contain the remarkable new desiccant, ANDRITE. They provide greater capacity, higher efficiency and a faster rate of moisture pickup.

In addition they are easy to install and much easier to replace than the conventional types of refrigerant driers.



ANSUL
Chemical Company

REFRIGERATION DIVISION • MARINETTE, WISCONSIN

MANUFACTURERS OF REFRIGERATION PRODUCTS, INDUSTRIAL AND FINE CHEMICALS, LIQUEFIED GASES AND FIRE EXTINGUISHING EQUIPMENT

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JULY, 1953 • COMMERCIAL REFRIGERATION



Temprite

OIL SEPARATOR

helps keep large air
conditioning systems at constant
peak efficiency.

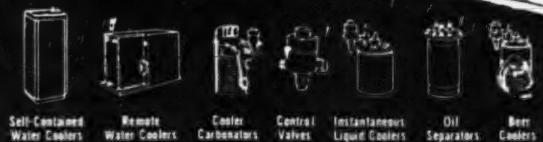
This is a true case history—A large air conditioning system in a midwest industrial plant (part of which is shown above) had been operating for a number of years without a Temprite Oil Separator. Maximum efficiency was never attained. Oil floating through to the system lodged in the evaporator coils, congealed in the expansion valve, reduced thermal conductivity of the

condenser . . . all in all resulting in erratic operation.

Immediately after installation of a Temprite Oil Separator, the system cleared up. The evaporator operated at proper temperatures; power consumption was reduced; the thermostatic expansion valve operated correctly, and greatly extended life of the compressor was assured.

Install a Temprite Oil Separator on every air conditioning and liquid cooling installation to assure maximum efficiency, operating economy and longer equipment life. Models from 1/6 to 150 h.p. capacity.

Temprite



PRODUCTS CORPORATION ★ BIRMINGHAM, MICHIGAN

TEMPRITE PRODUCTS CORP.

P.O. Box 72-B, Birmingham, Michigan

- Please send me complete data on Temprite Oil Separators
- Ask your representative to call

Name _____

Address _____ Zone _____

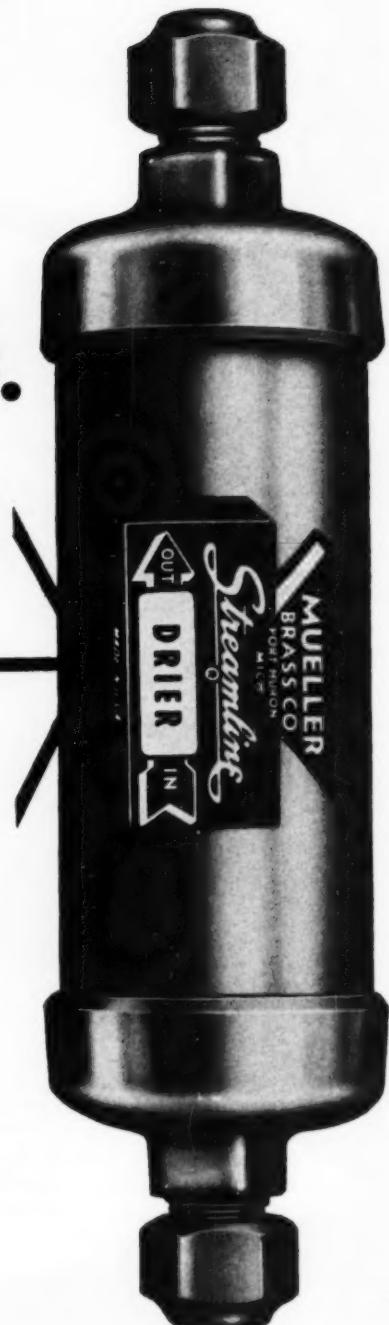
City _____ State _____

**you get 600,000 sq. ft.
of the best possible
drying surface in this**

MUELLER BRASS CO. DeLuxe Filter-Drier

Hundreds of thousands of Silica Gel granules manufactured to a special size and sealed into a 12 cu. in. Mueller Brass Co. Deluxe Drier provide over 600,000 sq. ft. of the best drying surface you can get—more than enough to keep your refrigerant thoroughly dry at all times. Many extravagant claims are made regarding the moisture absorbing capacities of desiccants. The property that is most important to the refrigeration industry is not the total amount of water that a desiccant will absorb, but rather it's the *end-point dryness* of the refrigerant that really counts. End-point dryness is the amount of moisture left in the refrigerant after the drier has absorbed its capacity. Tests prove that Silica Gel has the capacity to absorb and hold twice as much moisture, by weight, as other commonly used refrigeration desiccants while maintaining a fixed end-point dryness.

To date, more than 2,750,000 Mueller Brass Co. Driers have been installed in commercial refrigeration systems all over the world. The completely satisfactory service they have given wherever they were installed is proof enough that you just can't buy a drier anywhere at any price that will keep your refrigerant so thoroughly dry, so scrupulously clean and free from foreign matter. Mueller Brass Co. Driers are available in capacities from 3 cu. in. to 242 cu. in. Order now from your refrigeration wholesaler. Write for catalog describing the complete line of Mueller Brass Co. STREAMLINE refrigeration products.



*12 CU. IN. DRIER
ACTUAL SIZE

108

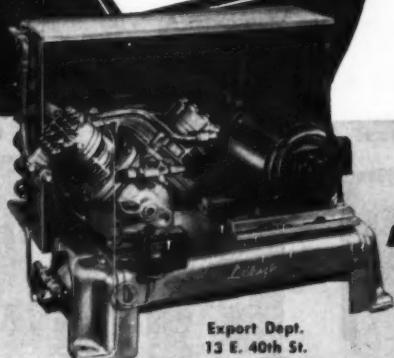
MUELLER BRASS CO. PORT HURON 10, MICHIGAN

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JULY, 1953 • COMMERCIAL REFRIGERATION

"It
takes all
6
for perfect
Wholesaler-
Dealer-User
Satisfaction"

Says The LEHIGH TEAM



Export Dept.
13 E. 40th St.
New York 16, N. Y.

Manufacturers of Malleable and Grey Iron Castings • Refrigerating Equipment • Air Valves • Automatic Vending Machines

**The fastest growing
independent line is Lehigh
BLU-COLD. The reasons for this
are sound as the line itself.**



1. A COMPLETE LINE Lehigh wholesaler can meet every demand of the dealer. The user has the widest choice of units or complete systems.



2. RELIABLE RATINGS Lehigh BLU-COLD rates capacities 100% by ASRE standards — without the use of a heat exchanger. This is a guarantee that the rated capacity will be delivered on the job without sub-cooling or other "stimulants".



3. HONESTLY HEAVY-DUTY Lehigh units from 1/3 H.P. thru 5 H.P., cataloged as HEAVY-DUTY, are really heavy-duty. Not just by name, but by construction. This includes such heavy-duty features as: REMOVABLE CYLINDER BLOCKS, COMPRESSION AND OIL RINGS, FULL LENGTH CONDENSERS, LARGE PUMP, DOWN CAPACITY RECEIVERS, ADJUSTABLE MOTOR RAILS, SPECIALLY DESIGNED MALLEABLE IRON BASES, etc. (Write for Bulletin H.D.)



4. INTERCHANGEABLE PARTS Lehigh units have the greatest parts interchangeability. Two sets of parts cover all units from 1/3 thru 5 H.P. Reduces inventory — simplifies service — reduces investment.



5. BASIC MATERIALS CONTROL The big, modern all-electric Lehigh foundry produces the finest close grained grey iron castings for BLU-COLD compressors. Lehigh makes more of the components that go into a unit than the majority of refrigeration manufacturers. We pass this advantage to you in many ways.



6. AGGRESSIVE, CAPABLE MANAGEMENT

Lehigh is a stable company, young in spirit, aggressive in management — and with an understanding of down-to-earth engineering and selling problems. A company that is small enough to take a personal interest in every customer and large enough to carry out full scale development and engineering programs.

**If you sell or use refrigeration —
it will pay you to know Lehigh better!**

Lehigh BLU-COLD
CONDENSING UNITS and SYSTEMS

Lehigh Manufacturing Co., Lancaster, Pa.
Division of Lehigh Foundries, Inc.

See your
Lehigh jobber for
PAR
REPLACEMENT PARTS



Deepfreeze Distributing Corporation's Sub-Zero Chilling Machine, equipped with two Allen-Bradley Bulletin 709 Automatic Starters.

Why are Allen-Bradley starters so popular for refrigeration and air-conditioning service? . . . Because they do not require regular attention, they are trouble free. Only ONE moving part. No pivots, pins, or bearings to corrode or stick . . . no jumpers to break. You install them . . . and forget them!

No contact maintenance . . . Allen-Bradley cadmium silver alloy contacts

never need cleaning, filing, or dressing.

Dependable overload relays . . . Allen-Bradley thermal relays are dependable and remain accurate in their operation, even after long service.

The Allen-Bradley trademark stands for millions of trouble free operations.

Install Allen-Bradley motor controls in your equipment today for rugged, reliable performance.

Allen-Bradley Co., 1340 S. Second St., Milwaukee 4, Wis.

TYPICAL ALLEN-BRADLEY REFRIGERATION CONTROLS

SPECIAL REFRIGERA-
TION CONTROL UNIT



PRESSURE AND TEMPERATURE
CONTROLS



MANUAL
STARTER



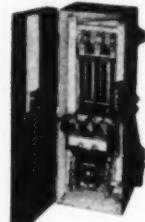
AUTOMATIC
STARTER



COMBINATION
STARTER



MANUAL REDUCED
VOLTAGE STARTER



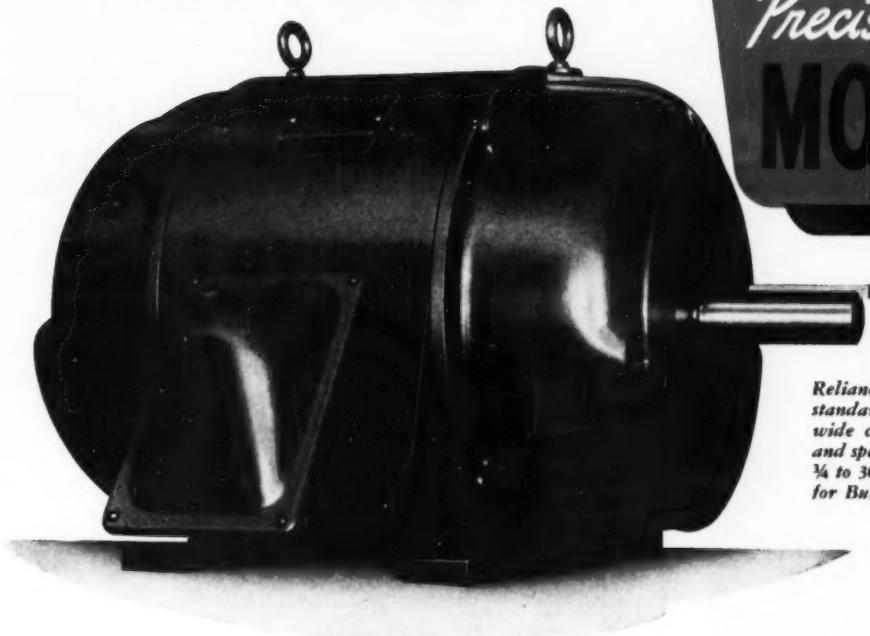
ALLEN-BRADLEY QUALITY MOTOR CONTROLS

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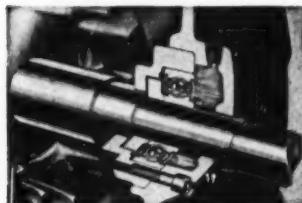
FOR COMPRESSOR SERVICE...

"All motors are
NOT alike!"



Reliance Splashproof Motor. All other standard enclosures available, with wide choice of mechanical designs and special mountings. Ratings from $\frac{1}{4}$ to 300 hp. Get the full story—ask for Bulletin B-2101.

- ★ Low starting currents...high starting torque...liberal ratings
- ★ Smooth acceleration...quiet operation
- ★ Tough, vibration-proof Reli-X insulation



... AND THE BEST PRE-LUBRICATED BEARING DESIGN
The Reliance pre-lubricated bearing provides four times more operating hours without re-lubrication than any other bearing used in motors today. And—whatever your lubrication schedule—you just can't grease 'em wrong! To get the complete "inside story" on motor bearings, write today for Bulletin B-2201. It contains hard facts on the advantages of the Reliance pre-lubricated bearing design, with cutaway view, cross-section diagram, comparison chart, and statements by bearing manufacturers. B-100C

RELIANCE ELECTRIC AND
ENGINEERING CO.

1113 Ivanhoe Road, Cleveland 10, Ohio • Sales Representatives in Principal Cities

Circle No. 13 on Reader Service Card

and AIR CONDITIONING • JULY, 1953

The Sea Wolf

Goes Modern

with JAMISON Cold Storage Doors

In Jack London's story, the Sea Wolf was a hard adventurous skipper who knew nothing about food protection and cared less. In the modern Sea Wolf Restaurant, in Jack London Square, Oakland, Calif., the skipper and his crew think differently.

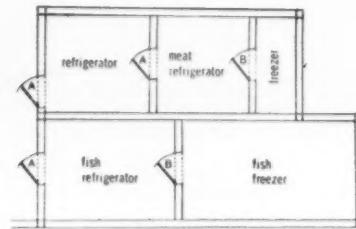
They know the secret of good food is to keep it fresh. That's why Jamison Cold Storage Doors were selected for this beautiful restaurant. Jamison Cold Storage

Door construction, insulation and hardware keep refrigeration and cold storage at peak efficiency.

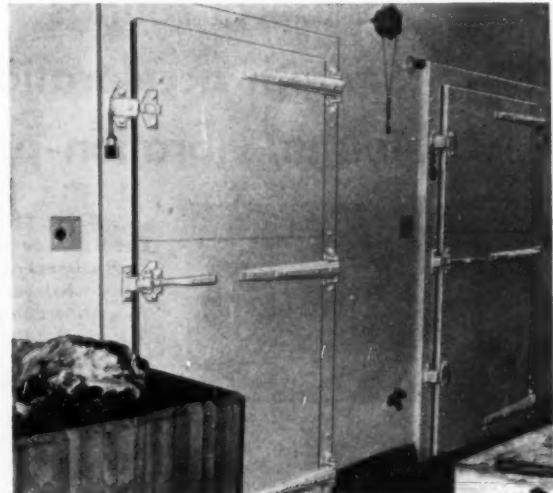
The best architects and contractors specify the *best* in cold storage doors—JAMISON. Architect for the Sea Wolf: Harry A. Bruno, Oakland, Calif.... Insulation Contractor: Western Asbestos Co. JAMISON COLD STORAGE DOOR CO., HAGERSTOWN, MD.



SUPER FREEZER DOOR in Meat Storage Room leading to General Freezer.



COLD STORAGE LAYOUT—Three doors marked "A" are 3' x 6'6" Series "SO" with 16 gauge Kickplate on front, back and edges 4' up. Two doors marked "B" are Overlap Super Freezer with Metal on back.



SERIES "SO" DOORS to Fruit and Vegetable Room and Fish Refrigerator.



The leader for over 50 years

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Back of These Products
is a name
that you can trust



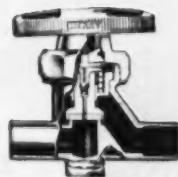
Relief Valve



Wing Cap Valve



Packless Valve
With Balanced-Action
Bus Bottom Type



Packless Valve
With Balanced-Action
Standard Type



Drier



Ammonia Valve



"T" Strainer



Angle Type Drier

HENRY VALVE CO.



MELROSE PARK, ILL. (Chicago Suburb)
CABLE: HEVALCO MELROSE PARK, ILL.

Valves • Driers • Strainers • Control Devices and Accessories for Refrigeration, Air Conditioning and Industrial Applications
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and AIR CONDITIONING • JULY, 1953

Tops for Dependable, Economical Refrigeration . . .

The New Frigidaire XD Meter-Miser!

Extra Protection

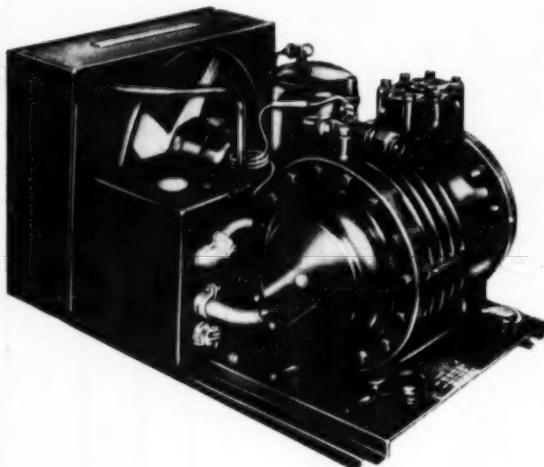
Liberal 5-Year Warranty offers proof of real protection against major service expense.

Extra Economy

Saves and saves in operation and maintenance over conventional compressors. Eliminates parts which cause most service calls.

Extra Compactness

Takes less floor space than conventional compressors of comparable capacity. Lighter weight combined with resilient mountings allow greater flexibility in installation.



Extra Quality

Built from the inside out to most rigid precision standards and from highest quality materials.

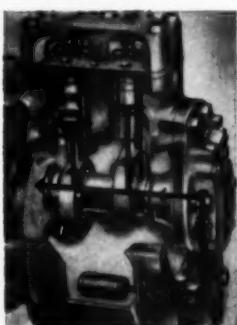
Extra Efficiency

Years ahead design gives high output and low operating cost.

Extra Operating Life

Direct-drive, refrigerant-cooled motor, special bearings, pressure lubrication, guarantee day-in, day-out dependability.

Designed to stop trouble before it starts!



Full pressure lubrication means long life

Continuous lubrication under pressure to all moving parts furnished by special oil pump. The end result is reduced friction and wear. This is another typical example of the extra quality features that mean long, trouble-free operation.

Here's the sensational new Frigidaire Compressor that's built to keep trouble away . . . built to banish the causes of 70% of all compressor service calls. Direct drive eliminates fly-wheels, motors, pulleys, compressor belts, and shaft seals. It's sealed against moisture, dirt, dust, and air; yet *all* parts are fully accessible for inspection and maintenance.

Here's why XD means Extra Duty! Full-rated capacities assure delivery of full cold-making power. Extra dependability with filtered oil delivered under pressure to every bearing surface. Extra motor life with windings cooled by refrigerant gas to operate at much lower temperatures. Available in air cooled models, $\frac{1}{3}$ to 3 hp, water cooled models, $\frac{1}{2}$ to $7\frac{1}{2}$ hp. Call your Frigidaire Distributor or Factory Branch Office—his name is in the Yellow Pages of your phone book. Or write Frigidaire, Dayton 1, Ohio. In Canada, Toronto 13, Ontario.

Frigidaire compressors



BUILT AND BACKED BY GENERAL MOTORS

The most complete line of air conditioning and refrigerating products in the industry

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JULY, 1953 • COMMERCIAL REFRIGERATION

An

Engineered Answer

✓ low cost ✓ efficient
✓ trouble free



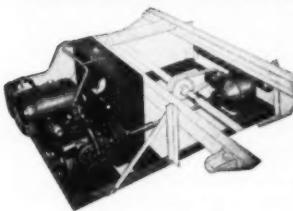
KOLD-HOLD truck refrigeration will pay for itself

Now you can have truck refrigeration that is engineered to your special needs using any of several different methods of truck refrigeration. It can be fully automatic and entirely independent of the driver using a Kold-Trux "Mobilmatic" Highside Unit. The Kold-Trux Unit can be combined with Bonus Capacity "Hold-Over" Plates, Thin "Hold-Over" Plates, "Quick-Action" Plates or "Hydro-Pack" blowers to provide thermostatically con-

trolled temperatures automatically. For semi-automatic installation, a mounted compressor or make-and-break connections can be used with "Hold-Over" Plates to maintain predetermined temperatures throughout day-long hauls.

Send the details of your problems to Kold-Hold and let our engineers determine the most efficient solution for your refrigeration problems. Write today for full details.

KOLD-HOLD can answer any refrigeration problem!



KOLD-TRUX

Which do you prefer . . . Mobile or Hold-Over truck refrigeration? Kold-Hold can give you either or a combination of both.

When your weather worries start, pick out the routes with the biggest refrigeration problems and call on Kold-Hold to give you a satisfactory solution. They will give you the right combination for your needs from such highsides as the Kold-Trux Mobile Unit, a mounted compressor, or make-and-break assemblies, coupled to such lowsides as Kold-Hold Hold-Over Plates, Thin Plates, Serpentine Quick-Action Plates, or Blowers.

Why not give us the details of your problems and let our engineers find the most efficient solution for you. Write today for details.



HOLD-OVER PLATES



Tell us your truck refrigeration problems and send now for complete data and literature.

KOLD-HOLD

MANUFACTURING COMPANY • 1002 S. Broad St. • Philadelphia 3, Pa.



Cases

offer your customers a “DOUBLE TAKE”



UP TO 300% SALES INCREASE

Mass displays that place more food varieties within easy reach of the buyer always increase sales volume . . . (as much as 300% according to users' reports.)



UP TO \$210 SAVINGS—EXTRA PROFITS

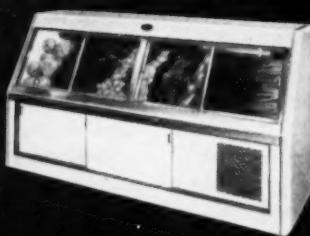
result from Sherer's patented refrigeration system*. Unit running time is reduced as much as 15% and savings up to \$210.00 annually per 10-foot case result.

*Atomized Air—Directional Flow—Recirculated Air

And so your customers get a DOUBLE TAKE—a double chance for profit and saving that makes it easier for you to sell.



Model 3100CS has a big display capacity for high-profit, fast-moving items.



Model UL3208MB multi-purpose merchandiser for produce or dairy products.



Model UL2710CS reversible convertible self-serve case that adopts its "4-in-1" convertibility to needs of individual markets.



Model 3008CS frozen food merchandiser with extra capacity and a truly continuous display when two or more are joined.

WRITE FOR COMPLETE FRANCHISE INFORMATION — Find out why Sherer's patented refrigeration system cuts running time and saves up to \$210.00 yearly per 10-foot case.



SHERER-GILLETT CO., Marshall, Mich.

Circle No. 18 on Reader Service Card



by Albert Woodruff Gray

Legal problems are an inherent part of operating any business enterprise. If you are beset by them, you'd better talk to your lawyer. This column, which will appear periodically in the issues of COMMERCIAL REFRIGERATION AND AIR CONDITIONING, in no way aspires to serve as legal counsel for our readers. It is prepared, however, by a man well versed in legal practices and opinions, and by presenting digests of actual court cases involving commercial refrigeration and air conditioning dealers and contractors we hope to enable our readers to sidestep some of the legal pitfalls into which they otherwise might unwittingly stumble.

—The Editors

ORAL CONTRACT UNENFORCEABLE

THE owner of a butcher shop in Albuquerque, N.M. made a contract in writing for the purchase of a refrigerator display counter.

At the time this written contract was made, the dealer told this purchaser that if he would not purchase a larger counter from any other dealer, he (the dealer) would sell the customer a 12-foot display refrigerator counter, take back this 6-foot one, and apply the equity in the smaller case on the purchase price of the 12-foot case.

When the dealer failed to collect for the smaller case, he repossessed it and sued for the balance remaining unpaid after crediting the value of the repossessed box.

In his defense to the action for this balance, the butcher set up this oral contract relating to the purchase of a bigger display box, claiming that the dealer had failed to carry out this agreement. The contract for the purchase of this smaller 6-foot case had been in writing and signed after the oral agreement relating to the larger box had been made.

Refusing to recognize this oral agreement as valid, the Supreme Court of New Mexico quoted as an authority for this decision a paragraph from a decision by the United States Supreme Court.

"Undoubtedly the existence of a separate oral agreement as to any matter on which the written contract is silent, and which is not inconsistent with its terms, may be proved by parol (pleas),

Continued on page 20

ANACONDA REFRIGERATION PRODUCTS

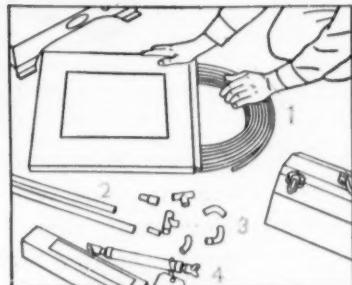


OFF TO A GOOD INSTALLATION . . .

Why? Because the copper piping on this installation, as on all he makes, is going to be an all-Anaconda job. Uniform temper and exact fitting for fast connection speed up his work . . . help maintain his reputation for quality. He buys only

from his regular wholesaler and gets the prompt, reliable service he wants. Your own jobber will meet all your piping needs with the same dependable service. Ask for **ANACONDA** Refrigeration Products. Look for the **ANACONDA** Trademark.

COMPLETE LINE OF
ANACONDA REFRIGERATION PRODUCTS



4 QUALITY PRODUCTS, EACH THE RESULT OF MODERN MANUFACTURING METHODS

1. Copper tubes in 50-ft. coils.
2. Hard copper tubes in straight lengths.
3. Fittings (elbows, tees, couplings, unions, adapter and reduction combinations, etc.).
4. American Vibration Eliminators.

THE AMERICAN BRASS COMPANY, Waterbury 20, Conn.
In Canada: Anaconda American Brass Ltd., New Toronto, Ontario



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and AIR CONDITIONING • JULY, 1953



BULLETIN 17

gives step-by-step directions for torch-brazing fittings to pipe and tubing with the low-temperature silver brazing alloys EASY-FLO and SIL-FOS — the fast, low-cost way to get permanently leak-tight, maintenance-free assemblies. Write today for your copy of Bulletin 17.



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General Offices: 82 Fulton St., New York 38, N.Y.
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20

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if under the circumstances of the particular case it may properly be inferred that the parties did not intend the written paper to be a complete and final statement of the whole of the transaction between them.

"But such an agreement must not only be collateral but must relate to a subject distinct from that to which the written contract applies; that is, it must not be so closely connected with the principal transaction as to form part and parcel of it. And whether the writing itself upon its face, is couched in such terms as import a complete legal obligation without any uncertainty as to the object or extent of the engagement, it is conclusively presumed that the whole engagement of the parties and the extent and manner of their undertaking were reduced to writing."

Alford v. Rowell, 103 Pac. 2d 119,
New Mexico

BOTTLE COOLER CHATTEL MORTGAGE

THE purchaser of a bottle refrigerating device gave in payment a promissory note secured by a chattel mortgage on the bottle cooler.

When suit was brought by the dealer to collect this note the purchaser contended in his defense that the dealer had guaranteed that this cooler would perform the service for which it was intended and, should it fail to do so, that the dealer would accept its return.

The Texas Supreme Court held that this defense could not be sustained on these facts. "Proof of oral representations and warranties made prior to the execution of a written contract, and not embodied therein, was inadmissible. This is necessarily the law, for otherwise a party could destroy the value of a written contract by the mere proof of contemporaneous agreements. The very purpose of putting an agreement in writing is to definitely settle its terms and to exclude all understandings to the contrary.

"The alleged oral warranty that the refrigerator would work satisfactorily and that if it did not the vendor would rescind the contract, is in direct conflict with the written instrument wherein it was provided that there were no warranties either express or implied, other than those set out in the written instrument."

Super-Cold Southwest Co. v. Elkins,
166 S.W.2d 97, Texas.

TRANE SUB-OFFICE OPENED IN FARGO

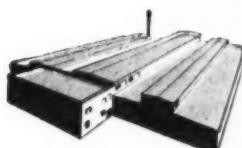
Trane Co has opened a new sub-office under the management of George W. Robbins in Fargo, N. Dakota. Robbins, formerly with the St. Paul sales office, will locate at 115 Roberts St.

No. 9 of a Series of 12 Advertisements

Good Men to Know!



L. K. "JACK" ALTMAN
Factory Representative
Southeastern Territory
serving you through these
reputable wholesalers



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		 D. T. SEGLER Segler Refrigeration Supply Macon, Georgia
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CONSULT YOUR McQUAY WHOLESALER FOR EVERY REFRIGERATION NEED

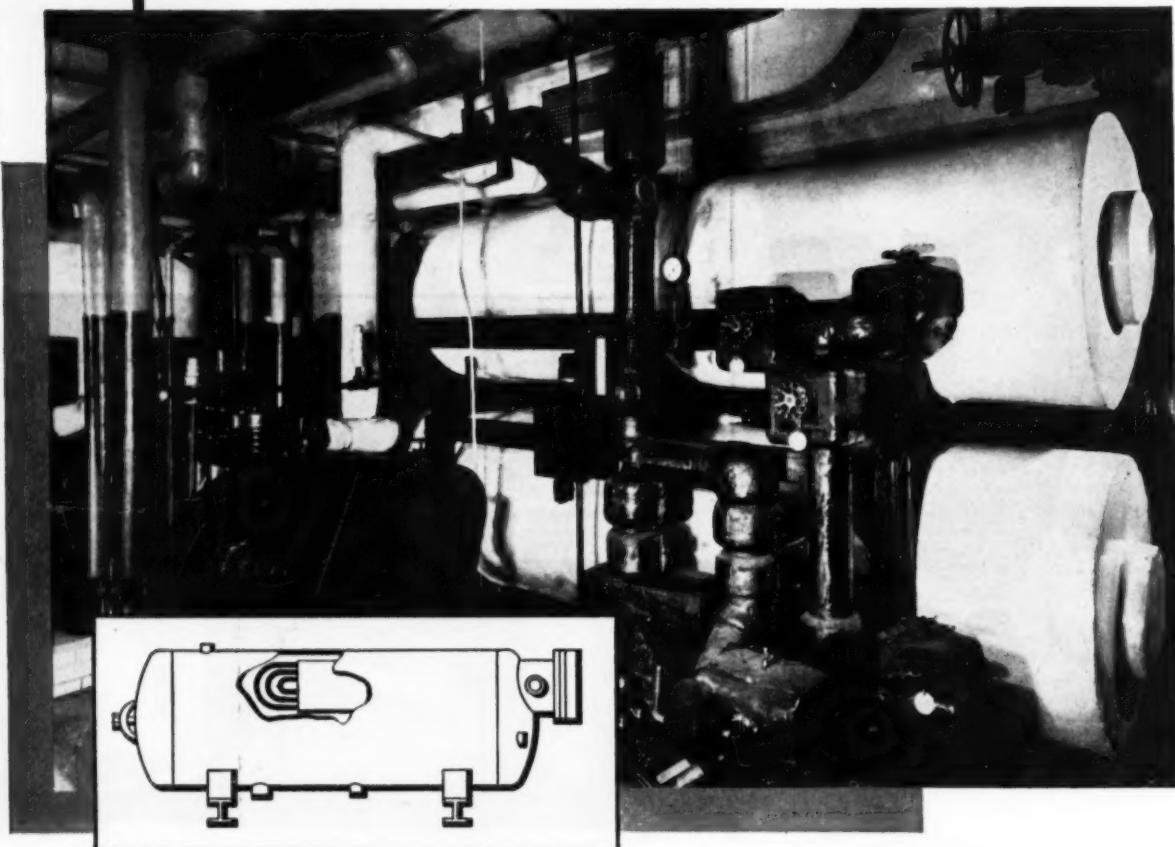
McQuay is proud of its complete line of *proved and preferred* refrigeration equipment and of the men who represent the company to you. There is a McQuay wholesaler in your territory, qualified by long experience and backed by the entire McQuay sales and engineering organization, who can give you the right answer to your specific problem — whether it's selling help, technical advice or quick action you want. Consult your McQuay wholesaler or write McQuay, Inc., 1643 Broadway N.E., Minneapolis 13, Minn.

m^cQuay INC.



MANUFACTURERS OF HEAT TRANSFER EQUIPMENT SINCE 1923
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and AIR CONDITIONING • JULY, 1953

**keep up with the Times
pipe cold drinking water to all working areas
from a p-k storage water chiller**



Fresh, chilled drinking water is efficiently supplied
to all 17 floors of the New York Times building in New York
by means of a new p-k combination
water storage tank and built-in chiller.



With this design, smaller chilling surface and refrigerator compressor capacity can be used and the load factor is improved. Individual water coolers are dispensed with and concentration of cooling facilities in one central location reduces initial investment and facilitates servicing. Fluctuating water requirements are easily met without

temperature change. Any new or present compressor equipment can be used.

p-k storage water chillers are available in many sizes and in various kinds of materials to suit individual requirements. These same storage cooler units are applicable to any liquid cooling application, in process and other industrial plants.

*Write today for illustrated literature and engineering suggestions.
Ask for Catalog No. 101.*

the Patterson-Kelley Co., inc.

370 Burson St., East Stroudsburg, Penn.



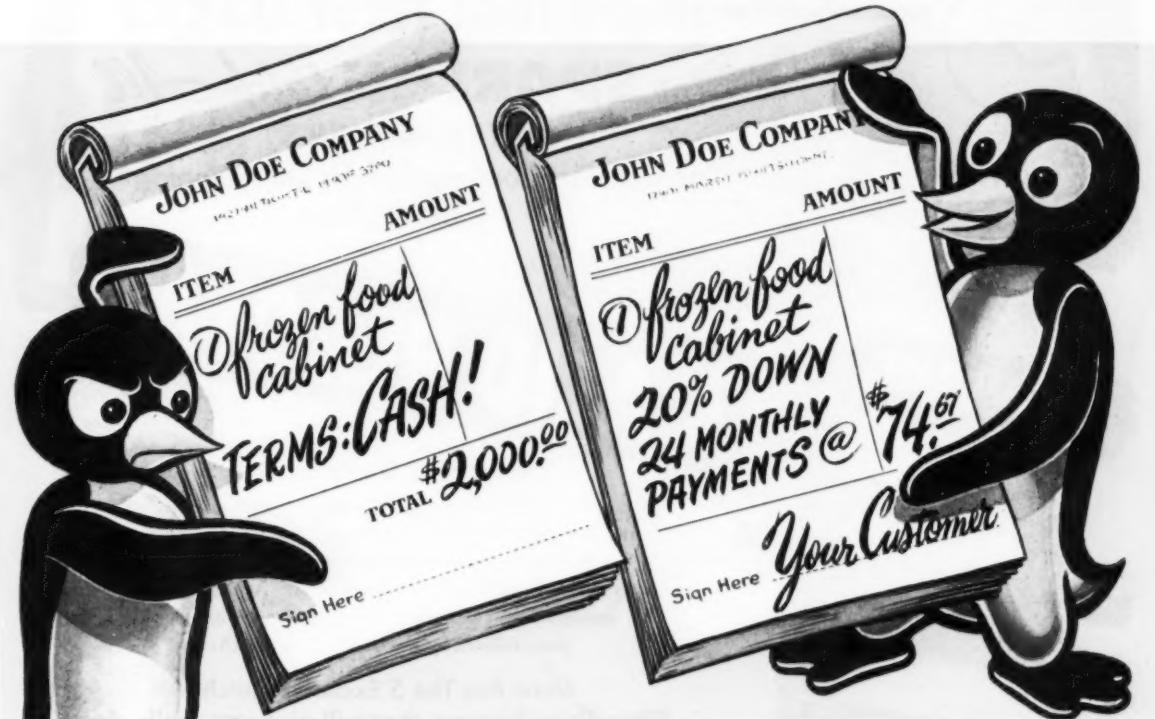
101 Park Avenue, New York 17 • Railway Exchange Building, Chicago 4 • 1700 Walnut Street, Philadelphia 3 • 96-A Huntington Avenue, Boston 16 • and other principal cities.

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JULY, 1953 • COMMERCIAL REFRIGERATION

IF YOU WERE Your Prospect which order would YOU sign?

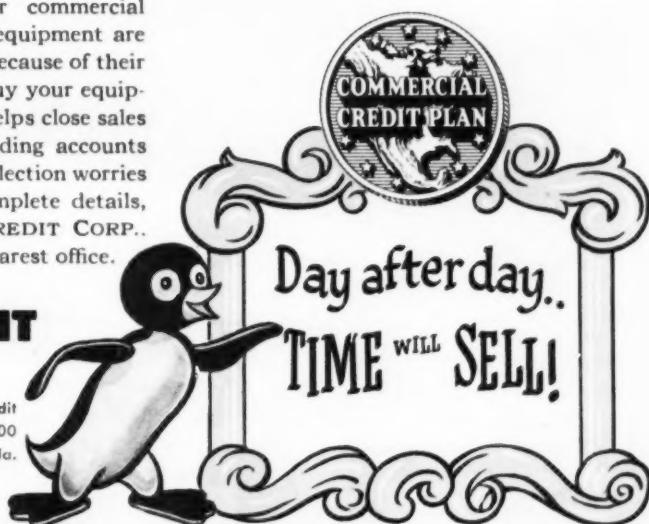


**Feature Time Payments to close more sales
with the COMMERCIAL CREDIT PLAN**

MORE AND MORE prospects for commercial refrigerating and air conditioning equipment are becoming, of necessity, TIME BUYERS. Because of their cash position it's the only way many can buy your equipment. The COMMERCIAL CREDIT PLAN helps close sales . . . improves your cash position by avoiding accounts receivable. And you turn your credit and collection worries over to COMMERCIAL CREDIT. For complete details, facts and figures, write COMMERCIAL CREDIT CORP., 14 Light Street, Baltimore 2, Md. or our nearest office.

COMMERCIAL CREDIT CORPORATION

A service offered through subsidiaries of Commercial Credit Company, Baltimore . . . Capital and Surplus over \$125,000,000 . . . offices in principal cities of the United States and Canada.



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and AIR CONDITIONING • JULY, 1953

LATEST TESTS add a

3rd

1. FILTERING
INSTEAD OF STRAINING

2. DRYING

SEALED CATCH-ALL



REPLACEABLE CORE CATCH-ALL

Send for
YOUR NEW
CATCH-ALL BULLETINS
Today!

SPORLAN VALVE COMPANY



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EXPORT DEPARTMENT

89 BROAD STREET NEW YORK 4, N.Y.

Circle No. 24 on Reader Service Card

JULY, 1953 • COMMERCIAL REFRIGERATION

Important NEW USE
for **SPORLAN Catch-All**
FILTER-DRIERS
on Comfort Cooling and Air Conditioning
installations

3. ACID REMOVAL

Everyone knows...

the tremendous advantages Catch-Alls have over ordinary strainers and driers for perfect filtering and drying. But recent tests prove that in addition Catch-Alls remove the harmful corrosive acids which cause the most serious problems in refrigeration systems today! Acids also attack hermetic motor windings, causing costly burnouts. Guard against these failures by always installing Catch-Alls!

Here Are The 5 Exclusive Catch-All
Filter-Drier Features that will give you really clean,
really dry, acid free refrigeration systems

1. They cannot powder!
2. They cannot pack!
3. The refrigerant cannot channel around the desiccant!
4. The unique, porous Catch-All cores are molded of minute particles of a highly efficient desiccant, the efficiency of which is greater than that of the same desiccant in granular form. 100% activation after complete assembly, then sealed with moisture proof seals.
5. They dry down to a low end point... a point so low that any remaining moisture is absolutely harmless!

Don't settle for
just any strainer or drier when
there's a job to be done in air conditioning or comfort cooling.

DEMAND A SPORLAN CATCH-ALL FILTER-DRIER AND GET
PEAK PERFORMANCE RIGHT DOWN THE LINE



SEALED CATCH-ALL

NEW AMPROBE JUNIOR

VOLT-AMP TESTER

\$1985

INCLUDING
VOLTAGE
TEST LEADS



One pocket tester does the complete job.



IT'S A SNAP-AROUND AMMETER

Measures current instantly without shutdowns or breaking of insulation for ammeter connections.

Gives you tester ruggedness with instrument accuracy (within $\pm 3\%$ of full scale).

PICK THE RANGE THAT FITS THE JOB:

- MODEL "10": 0-10 AMPS A-C 0-125/250 VOLTS A-C
- MODEL "25": 0-25 AMPS A-C 0-125/250 VOLTS A-C
- MODEL "50": 0-50 AMPS A-C 0-125/250 VOLTS A-C
- MODEL "100": 0-100 AMPS A-C 0-125/250 VOLTS A-C



IT'S A VOLTAGE METER

Measures voltage quickly, accurately on a full-sized calibrated scale; eliminates guesswork.

**IF YOUR JOB CALLS FOR
A MULTI-RANGE AMPROBE:**



AMPROBE "300"
0-6/15/30/60/150/300
AMPS AC.
0-150/300/600 VOLTS AC.
\$49.50 COMPLETE WITH
LEATHER CASE AND
VOLTAGE TEST LEADS.



AMPROBE "600"
0-15/30/60/150/300/600
AMPS AC.
0-150/300/600 VOLTS AC.
\$59.50 COMPLETE



AMPROBE "1200"
0-15/60/150/300/600/
1200 AMPS AC.
0-150/300/600 VOLTS AC.
\$67.50 COMPLETE

Now every service man can be equipped with this time-saving pocket tool. The Amprobe Junior pays for itself the first month alone by taking the guess-work out of installation and servicing jobs. When you "Amprobe" it, you get it right the first time and eliminate costly call-backs. Write today for Catalog No. 73, Pyramid Instrument Corporation, Lynbrook, New York (Export Division: 458 Broadway, New York 13. Cable: Morhanex).

Circle No. 25 on Reader Service Card

and AIR CONDITIONING • JULY, 1953

higher efficiency

FROM SMALLER PUMPS!

I-R Motorpumps deliver more liquid per horsepower!

DOUBLE BALANCED IMPELLER—Balanced hydraulically to reduce thrust load; balanced mechanically to minimize vibration. This permits closer tolerances with less wear, and closer tolerances mean higher efficiency.

COMPACT—Pump and motor built as one unit on a single shaft. Motor is protected from liquid by a mechanical seal and a flinger.

ADVANCED DESIGN—Stuffing box is equipped with a heavy-duty, tamper-proof mechanical seal . . . contoured volutes and expert machining result in higher efficiency. The suction piece leads liquid directly to the impeller eye.

Oversize shaft minimizes deflection and vibration—insures a smooth running impeller—increases life of mechanical seal.

Oversize bearings give larger radial and thrust capacity.

AVAILABLE FOR RUSH DELIVERY—Call the nearest Ingersoll-Rand branch office and join the group of leading air conditioning contractors who are currently using these long-life, trouble-free pumps.



Ingersoll-Rand

11 Broadway, New York 4, N. Y.

Compact, advance designed Ingersoll-Rand Motorpumps give you . . .

- **LOW FIRST COST**
- **LOW POWER CONSUMPTION**
- **SPACE SAVING**
- **HIGHER EFFICIENCY**
- **EASY INSTALLATION**

For complete details, write for Bulletin 7177.



What's Your Problem— EXCESSIVE INVENTORY?

Deal with
DETROIT!
One Compact
Yet Complete Line
Answers
Every Service Need!



How would you like to reduce inventory? Simplify ordering? Ease stocking and handling? Obviously, you would...and you can without reducing your ability to fill orders one iota! How? By simply following the lead of thousands of leading wholesalers and dealers who have answered these and other problems with **DETROIT** Controls. For with **DETROIT** Controls you handle one compact yet complete line that answers every refrigeration need. That's because all **DETROIT** Controls, built by men who know your business, understand your problems, are designed for maximum adaptability and flexibility. **DETROIT'S** remarkable 777-E Thermostatic Expansion Valve, for example, may be used either with or without external equalizer connection. This plus readily adjusted superheat setting makes this valve suitable for many installations. In addition, all **DETROIT** Controls are quality-built of top quality materials to

assure long, continuous trouble-free operation. But why not find out for yourself? For complete information concerning the superior **DETROIT** line contact your nearest **DETROIT** wholesaler or write the factory direct.



DETROIT

Controls

Do You Know the **DETROIT** No. 673

THERMOSTATIC EXPANSION VALVE STORY?



Here is a valve that has truly been performance proven on hundreds of thousands of installations. This acceptance, earned through consistent quality, dependable service, universal application, flexible operation and sensitive response, has made the No. 673 the Standard of the Industry! Double bellows construction allows adjustment through a broad range of superheat settings. Capacities 1.2 to 3.6 tons Freon-12.

ESTABLISHED AS **DETROIT LUBRICATOR COMPANY** IN 1877
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Division of American Radiator & Standard Sanitary Corporation

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AUTOMATIC CONTROLS for REFRIGERATION • AIR CONDITIONING • DOMESTIC HEATING • AVIATION
TRANSPORTATION • HOME APPLIANCES • INDUSTRIAL USES
Serving home and industry — AMERICAN STANDARD • AMERICAN BLOWER • CHURCH SEATS & WALL TILE • DETROIT CONTROLS • KEWANEE BOILERS • ROSS EXCHANGERS

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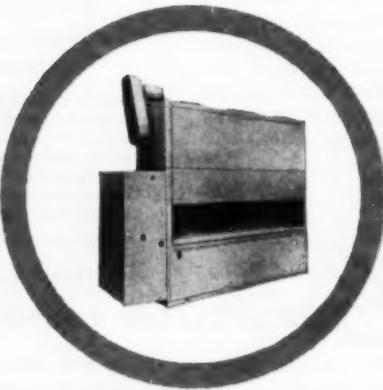




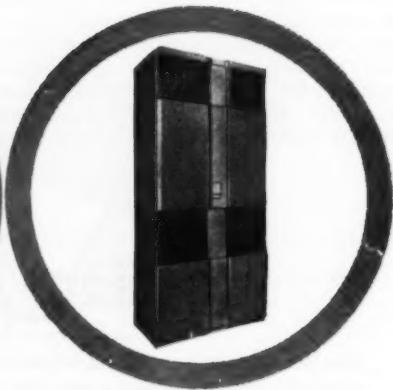
Get your money's worth with **CARRIER!**



Zoning Weathermakers — Fan-coil unit for zoned air conditioning systems that use remote sources of refrigeration and heat. Provides year-round air conditioning with individual room control. Available in five sizes, up to 10 tons.



Commercial Weathermakers — Compact self-contained unit for comfort and industrial applications with duct distribution. Basic assembly includes fan, cooling coil, refrigerating sections. Optional accessories can be added. 20 hp capacity.

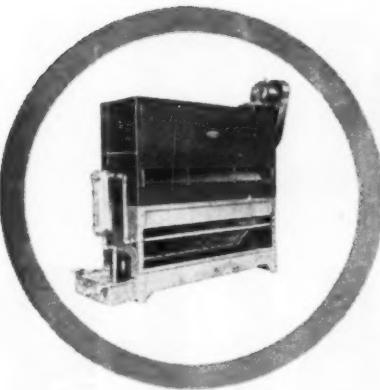


Self-contained Weathermakers — Complete packaged unit for air conditioning stores, shops, offices, laboratories. Used in the space or remote location, with or without duct distribution. Available in six sizes from 2 to 15 hp.

Circle No. 28 on Reader Service Card

JULY, 1953

COMMERCIAL REFRIGERATION



Industrial Weathermakers—Single unit spray-coil air conditioner for central cooling and heating systems using remote sources of refrigeration and heat. Cools, dehumidifies, heats, humidifies, filters and circulates air. Five sizes, up to 90 tons.



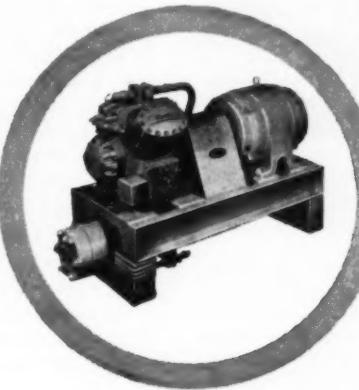
Evaporative Condensers—For heat disposal where water supply and drainage are problems, this fan-coil type refrigerant condenser takes the place of water-cooled condensers and cooling towers. Capacities to go tons.



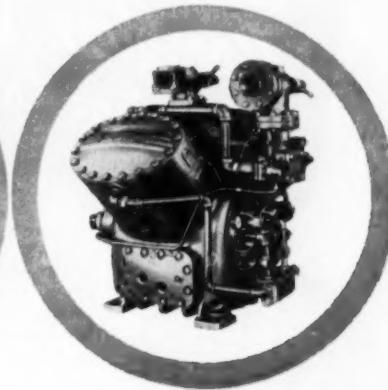
System Weathermakers—Fan-coil type air conditioner for central cooling and heating systems using remote refrigeration and heat. Seven basic fan and coil section sizes used with any one of four cooling coil capacities make 28 different sizes.



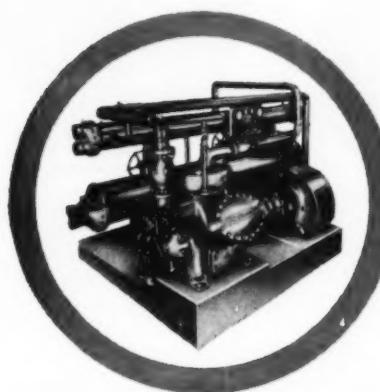
Duct-type Weathermasters—Low-pressure air distribution room units—ideal for hospitals, hotels, office buildings, apartment buildings, laboratories, banks and schools that have a remote source of refrigeration and heat.



2 to 125 hp Freon Refrigerating Compressors and Condensers—Heavy-duty reciprocating type for air conditioning and refrigeration applications. Uses Freon-12, Freon-22 or Carrene 7. Direct or belt drive. Used with water-cooled or evaporative condensers.



75 to 200 hp Reciprocating Compressors—For large commercial and industrial applications like freezing and processing. For industrial and comfort air conditioning. Heavy-duty V and W types, single-acting, enclosed. Direct, gear or belt driven.



100 and 150 hp Refrigerating Machines—Complete reciprocating systems for cooling water or brines for air conditioning and industrial process applications. Driven by electric motor, gas or Diesel engine, or steam turbine.

This complete line of equipment is available to contractors through Carrier Branch Offices, Dealers and Distributors. Your Classified Telephone Directory will put you in touch with the one nearest you. Carrier Corporation, Syracuse, New York.

Carrier

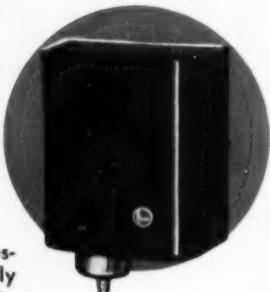
AIR CONDITIONING • REFRIGERATION
INDUSTRIAL HEATING

SEE YOUR WHOLESALE

ask for the PENN
Complete Line
of Cooling Controls



Series 246 Water Valves are zoned to keep water out of sliding parts . . . are built in threaded and flanged styles for all refrigerants and in sizes from $\frac{3}{8}$ " to $2\frac{1}{2}$ ".



Penn Series 325 Time-Pressure Defroster automatically varies the defrost period to satisfy load conditions . . . eliminates seasonal adjustments . . . avoids unnecessary shut-down time.

Whatever the control job . . . refrigeration or air conditioning . . . your wholesaler has a PENN precision-built automatic control that will do the job better . . . and make more money for you.

Costly service call-backs stop . . . and customers "talk you up" because of efficient on-the-job performance by PENN Controls. Quality . . . long years of service . . . customer satisfaction . . . are a PENN tradition.

In the PENN complete line there is a type to fit your needs exactly. Investigate the profit . . . get your free copy of PENN's Condensed Catalog and price list. Ask your Wholesaler or write **Penn Controls, Inc., Goshen, Indiana**. Export Division: 13 E. 40th Street, New York 16, N.Y., U.S.A. In Canada: Penn Controls Limited, Toronto, Ontario.

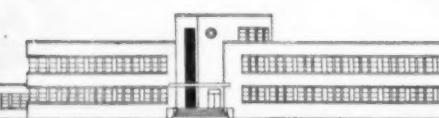


Series 275 Oil Protection Control with built-in Time-Delay Switch for use on all pressure-lubricated refrigeration compressors.



Penn Series 270 temperature and pressure controls have direct reading calibrated scale which shows both cut-in and cut-out points.

PENN



AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, GAS APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES
Circle No. 29 on Reader Service Card

Remember . . . there is a difference in controls



NEWS • LAWS • TRENDS

GOOD NEWS for refrigeration men, as far as the food store sales market is concerned, comes from the report made by Kurt Kornblau, research manager of Super Market Institute, to the recent SMI convention in Cleveland. According to his figures, 87% of the 300 SMI member firms surveyed recorded volume gains with fresh produce, 82% with meat. Separate delicatessen departments were reported for 65% of the supermarkets, with 80% of these being of the completely self-service type. The firms surveyed operate a total of 3955 stores. This means a continuing good field for refrigeration equipment among the supers. And with 45% of these stores now selling beer, it could become even better.

FROZEN BREAD has been introduced by a New York baker, who says that it gives consumers, for the first time, "the opportunity to taste bread that is really fresh—as fresh as if it had just come out of the oven." Distribution at present is being limited to southeastern points and metropolitan New York, but both bakers and food store operators are watching the development with interest. Bakers, for the most part, say it would greatly reduce the costly return of stale loaves, said to have reached 8 million pounds last year. Principal objection by food stores appears to be that the mark-up (2 cents per loaf) wouldn't be enough to cover the additional handling, cabinet and other costs involved. A loaf of bread takes up about the same space as three 10-oz. packages of frozen peas. The bread is processed the same way as fresh bread, being frozen at -5F after it has been sliced and wrapped. It has a double wrap — cello inside and wax outside. Shipment is by refrigerated carriers.

PUBLIC INTEREST in year 'round residential air conditioning is evidenced by Servel's experience with its booklet, "Fourth Dimension of the Modern Home", now going into a reprinting after an initial run of 50,000 copies. The 20-page four-color booklet stresses the advantages and importance of an "ideal indoor climate"—a home's "fourth dimension"—and describes Servel's all-year air conditioning. It is being mailed in answer to coupons clipped from the company's national magazine advertisements on its 3.3-ton residential air conditioner, and is also being distributed at company exhibits at conventions and home shows.

FRENCH REFRIGERATION specialists, under sponsorship of the Mutual Security Agency's productivity and technical assistance program, are making a study of the methods and techniques responsible for high productivity in the American refrigerating equipment industry. Their studies include quality and cost control methods, standardization and simplification, mass production techniques, research facilities, merchandising, sales and service. Findings will be made available to the French Refrigeration Manufacturers Association, through reports and meetings. Cities on the group's itinerary include Buffalo, Detroit, Chicago, Dayton, Evansville, Washington, D.C., and New York City.

RECENT REPORTS in the *Journal of Experimental Medicine* indicate that germs expelled in the globules of saliva from a cough or sneeze are killed by the salt content of the saliva if the relative humidity within the room is such (40 to 50 per cent) as to permit a moderate rate of saliva dehydration. The salt content is thus allowed to become concentrated into an antiseptic solution. The experiments reported covered certain types of pneumonia germs and influenza virus. They indicate the desirability of maintaining a middle range of relative humidity (through air conditioning) in places of assembly such as schools, offices, theaters and the like.

A Los Angeles contractor offers
a sound, constructive program of—

HANDLING USED MERCANDISE

To the Editors:

In the accompanying article I have outlined a program of handling used merchandise which has proved very successful in my own small refrigeration contracting operations. I hope that some of the information which it contains may prove of value to a number of your readers, just as I have been helped in the past by reading your magazine.

It is understood, of course, that every small business has its own individual problems in financing, organization, and management. Since each develops its own particular type of clientele, a hard and fast program of this type could apply to very few.

I do believe, however, that any small mechanic-business man with the initiative to implement a used merchandise program could effectively adapt to his own organization many of the basic principles which I have employed, and integrate these suggestions into an important and profitable part of his operations.

B. L. McDermott
McDermott Refrigeration Co.
Los Angeles, Calif.

For your file of
**MERCHANDISING
METHODS**

ONE of the problems that today's smaller refrigeration contractor faces is the financing of the fixture and equipment sales that he could make to his regular customers. They would normally prefer to buy their major equipment from him if he is in a competitive position, but the continued inflationary trend that promotes longer credit terms and more involved financing arrangements works against him.

In some cases the combination of short margins and long-term financing have hurt these businesses. A way around this problem is a sound program in the used merchandise field. It can be a great help to the small firm in overcoming some of the competitive advantages enjoyed by its larger rivals.

The profit percentage in used merchandise is a great deal higher than in new. What some people fail to realize is that an intelligent approach enables the dealer to operate profitably without outside financing, and still extend a reasonable payment period to his customers.

There are several ways of doing this. The primary objective in each instance is to secure as a down payment the amount of money expended for the acquisition of that particular article.

A little reflection will show that the key to success in handling used merchandise is in the buying, and not in the selling. Among the sources of merchandise that can be profitably utilized are auctions, court liquidations, and inventory reductions by the larger dealers.

Some good rules to follow in buying are:

1. The merchandise must be of standard make.
2. It must not be obsolete.
3. It must have more than one application.
4. It must be in such condition that the acquisition and repair costs will not exceed 40% of your new cost.
5. You must not be over-inventoried on any one item or type of item.
6. Never buy for cash from any of your customers.
7. Always pay spot cash for what you buy. This will establish you as the man to see on forced liquidation.
8. Always keep in a liquid cash condition so that you may take advantage of any unusual opportunity.

In the normal contracting field, used merchandise is valuable not only from a sales standpoint but also from a standpoint of workable inventory.

Continued on page 44

Circle No. 30 on Reader Service Card →

JULY, 1953 • COMMERCIAL REFRIGERATION



HYDRAULINE BASIC UNIT

Individual Room Control,
Perfect Balance
for:

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Reconditioned
Homes
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Motels • Hotels
Hospitals • Schools
Factories
and Plants

BORG-WARNER announces
Hydraline

**A NEW CONCEPT IN YEAR 'ROUND
RECESSED ROOM AIR CONDITIONING
WITH CENTRAL FORCED WATER SYSTEMS**

Developed for the master plumber by Borg-Warner engineering skill, the Hydraline Basic Air Conditioning Unit is a compact, forced-air room air conditioner.

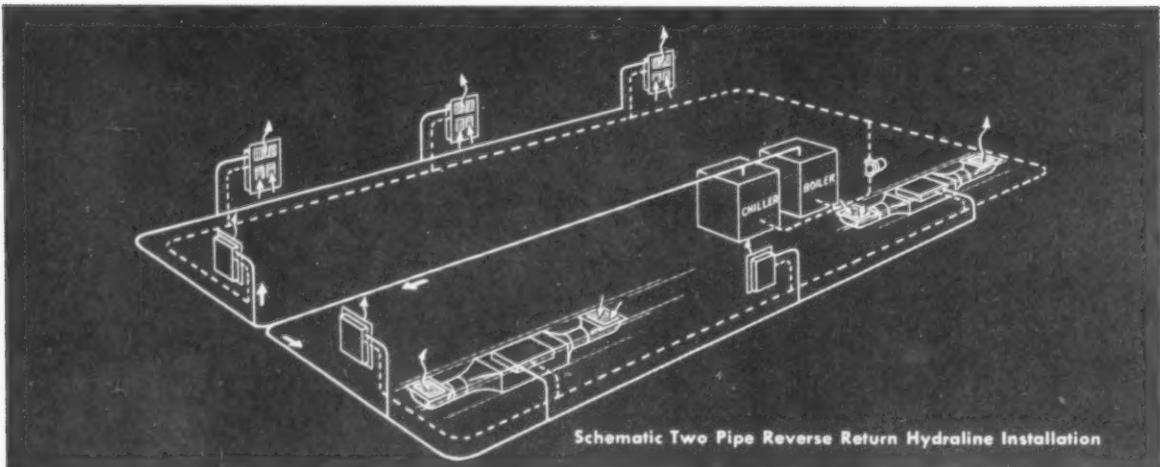
Fully recessed in walls or under floors, Hydraline Basic Units are designed for use with central forced water systems to combine individually room controlled winter heating and summer cooling at the lowest cost in history!

See other side for **Hydraline details**

Year 'Round Hydraline Room Air Conditioners

—can be installed on: (1) two pipe balanced reverse return systems, (2) single or multi-loop Monoflow parallel systems, (3) single or multi-manifold parallel systems. Hydraline Central Boilers, *Chillers, and Accessories are available in all sizes for complete system installations.

*If water at 45°-50°F. is available, no mechanical water chiller may be required.



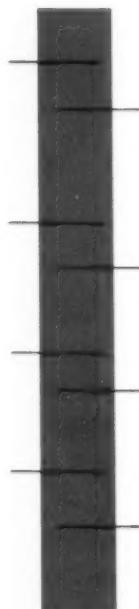
Why Hydraline Products offer the wet heat industry its greatest opportunity

Compact, fully recessed units—Hydraline Basic Air Conditioning Units are only 17 $\frac{3}{4}$ " x 14" x 4 $\frac{3}{4}$ ", and can be installed vertically flush to the wall between 16" studs or horizontally under floors between joists. Occupying no floor space, problems of furniture placement and room decoration are minimized.

Individual Room Control—Each Hydraline unit is equipped with a blower speed manual control. Automatic Control Kits also provide thermostatic control of individual room temperature.

Balanced Distribution—Independent operation of Hydraline units permits perfect temperature balance between rooms with either heating or cooling.

Individual Room Air Filters—Hydraline Units individually filter air as well as heat or cool each room. Filters may easily be removed by releasing the catch on return air registers, and cleaned as regularly as rugs, assuring a permanently dust-free room.



Perimeter Air Circulation—With Hydraline under floor units, location of the discharge register along outside walls and underneath windows free of the drape line, provides the desirable features of perimeter heating. Accessory stack heads for under floor installation are available for all conditions.

Most Sensitive Response—With individual forced air circulation, Hydraline units transfer heat and absorb heat over four times as fast as other forms of forced or central gravity systems, maintaining closest temperature control.

Radiant Panel Combination—With modulating controls, Hydraline Air Conditioning Units can be economically combined with Radiant Panel Heating where such combinations are advisable.

Lowest Possible Cost—Hydraline Air Conditioning Units cost no more than radiators; less than one-half the cost of other types of remote room conditioners; and less than one-third the cost of window-type room conditioners.

Ask your wholesaler for the complete Hydraline catalog or contact us direct by mail or wire.



Hydraline PRODUCTS
BORG-WARNER CORPORATION

346 E. South St., Kalamazoo, Mich.

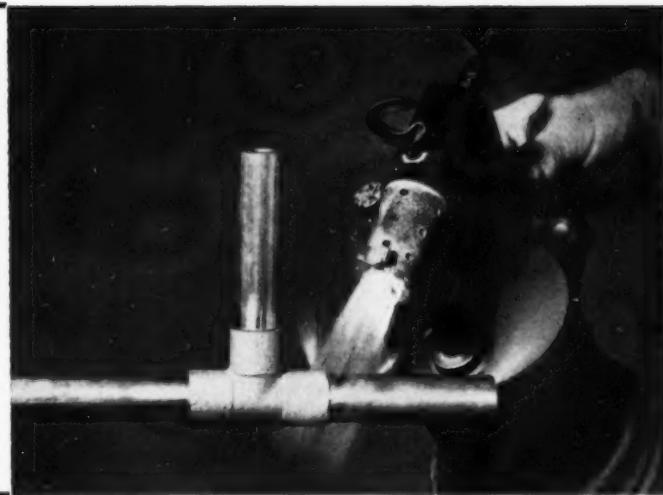


Water Boilers • Water Chillers • Heat Pumps • Domestic Water Heaters
Air Conditioning Units • Piping and Accessories

5 SIMPLE RULES

for soldering water tube joints

1. Polish outer tube ends and inner surfaces of fittings.
2. Apply a suitable flux to these areas.
3. Apply heat and solder.
4. Remove residual solder and flux.
5. Let joint cool.



Here's How To Make Leak-Proof Joints In Copper Water Tubing

by John S. Coe

Chase Brass & Copper Co.

COPPER water tube and fittings designed to provide proper tolerances may be easily joined by using either soft or hard solder, as the case requires, providing the proper procedures are carefully followed.

Soft solders are usually adequate for most tube and fitting installations, but hard or silver solders are recommended where unusually high temperatures, pressures, or stresses are found.

Pretinning is unnecessary because capillary action will draw molten solder between the tube end and the inner surfaces of the fitting to form perfect, water-tight joints. All that is needed is to polish the outer tube ends and the inner surfaces of the fittings, apply a suitable flux to these areas, apply heat and solder,

remove residual solder and flux, and let the joint cool.

Tube ends should be cut square with a hacksaw having 24 or 32 teeth per inch or by means of blade cutters which are available for diameters up to 3". A template of thin straight-edged metal or stiff paper is helpful as a line guide for saw-cuts in large diameter tube. Mitre tools are available for cutting copper water tube sizes up to 2".

Burs are easily removed from inside and outside tube edges with a half round file. The chamfering of these edges will make joining of tube and fitting easier in the larger sizes.

No. 00 steel wool or sand cloth may be used to polish the outer surfaces of tube ends and the inner surfaces of fittings before flux is spread on these areas. Special wire brushes also are available for polishing the inner surfaces of fittings.

The purpose of the flux is to assure chemically clean surfaces

and to prevent oxidation when heat and solder are applied. Flux should be mildly corrosive for cleaning metal surfaces but this action should cease during the soldering process.

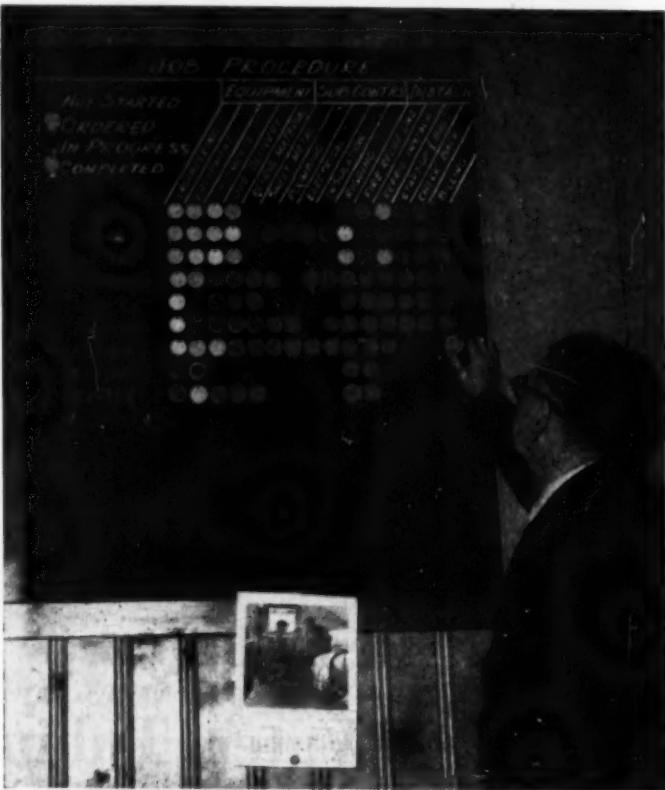
A flux that is recommended for use without precleaning the copper surfaces should be avoided because it may continue to be corrosive after soldering is completed. A flux best suited for copper consists of zinc and ammonium chlorides prepared with petrolatum in convenient paste form.

Soft solder is adequate for joints in water lines where temperatures do not exceed 250F and there are no excessive pressures or stresses. Types of solders that may be used include 50/50 tin-lead, 95/5 tin-antimony or other tin-lead alloys.

Heat may be applied to the joint by means of a gasoline blow torch or an air-gas torch of suitable size. If a torch is used, wire solder should be applied as the flame is moved away from the joint. At the



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SCRATCH ONE CONTRACT. says Bill Heaney, as he hangs a "Completed" tag on Job No. 52-124 to indicate that the installation has been billed.

Keeping Tab on Big Jobs

REFRIGERATION and air conditioning contractors handling any number of really big jobs, the installation of which often drags on for many months, frequently find it difficult to keep in mind the exact status of each contract. This problem has been neatly solved by Bill Heaney, of the W. T. Heaney Co., in Detroit, Mich., with a "Job Procedure" board which is clearly visible from any point in the office.

This board, as the photo above indicates, is divided vertically into the following primary and secondary classifications: Equipment — engineering, equipment, shipments, job delivery, and refrigeration material; Sub-Contractors — sheet metal, plumbing, electrical, insulation, and rigging; Installation — fire relief line, refrigeration installation, start-up and balance, check back, and billing.

Each project is listed by job number down the left-hand side of the board, and the progress of each job is posted by means of red, blue, green, and yellow tags indicating "not started", "ordered", "in progress", or "completed".

With a progress chart like this, religiously posted every time any step of an installation moves into another phase, the Heaney organization never has to wonder about the status of any contract, no matter how big the job may be nor how long it may take to complete.

right temperature solder will melt and can be flowed into the joint until it is filled.

Care should be taken to avoid overheating the joint and the consequent burning of the flux. Solder will not enter the joint and its surfaces will have to be re-cleaned should this occur.

The soldering of fittings that are more than 2" in diameter may be done by heating with one or more torches, but greater care is required to prevent spot overheating, particularly if more than one heat

For your file of
**MAINTENANCE
METHODS**

source is applied. If the flame is moved uniformly over the entire area of the fitting until a point just below the melting point of the solder is reached, large fittings can be conveniently soldered by re-application of heat to limited areas.

By applying the flame over an arc of approximately 2 or 3", wire solder can be tested for temperature and then flowed into the joint to form a soldered section. By repeating this step-process, overlapping sections can be made until the entire joint has been filled with solder.

When joints exceed four inches in diameter, heat is rapidly dissipated so that best results may be had through the use of an oxy-acetylene torch with a medium sized tip. For smaller sizes of copper water tube, gasoline, butane, propane or air-acetylene torches, or "thermo grip" electrical units may be used.

Surplus solder and flux may be removed with a rag or brush to improve the appearance of good workmanship. Then the joint should be allowed to cool.

Hard solders are those that have melting points above 600 F. Many of these have melting points of more than 1100 F and, depending on their composition, are identified as silver solders or low temperature brazing alloys. High silver content solders provide desirable prop-

Continued on page 54

about

PEOPLE

Harold Kain has been named sales manager of Koch Refrigerators.



Kain was purchasing agent and advertising manager for Marlo Coil Co. from 1946 until his resignation to accept the new appointment. Previously, he had been with Koch for 12 years where he worked in engineering and design, sales, and as purchasing agent.

Niagara Blower Co. announces the appointment of **Ralph C. Knight** to the newly created position of director of sales with offices at 405 Lexington Ave., New York City. Knight has been with the company since 1942 in charge of New England sales and application engineering. He is moving from Boston to New York for the new position.

Donald F. Motz has been appointed product manager of the Williams Div., Eureka Williams Corp.



Motz will do liaison work between the division sales and engineering departments and will head product application engineering for the Air-O-Matic residential air conditioning and Oil-O-Matic and Gas-O-Matic forced air heating units. He will also direct the technical and application engineering education program for employees and dealers. Motz was re-

cently chief of the Tank Automotive Branch, Contract Administration Div., Chicago Ordnance District. Previous to his ordnance work, he was assistant chief engineer for Air Comfort Corp., Chicago.

Hugh Cooper and **Art Curran** have been appointed to new sales positions in Tyler Fixture Corp.



A. Curran



H. Cooper

Cooper has been appointed sales manager of the HarderFreez division and Curran will be supervisor of agency sales, the post formerly held by Cooper. With the firm since 1946, Cooper will be responsible for full direction of sales policies for the company's line of home freezers. Curran started with Tyler in 1941 and in 1946 became a member of the commercial sales force.

Robert M. Johnson has been appointed Southern California sales



manager for General Controls Co. He will supervise manufacturer, dealer and other customer relations for the firm's entire line of controls. Johnson has been in the air conditioning, ventilating and heating fields for more than 15

years. He was formerly with Payne Furnace Div., Affiliated Gas Equipment, Inc.

Harry R. Henke has been appointed advertising manager of Bell & Gossett Co.



Henke, who joined the firm in 1949 as a member of the sales staff, succeeds Wendell S. Clough who recently joined the Ford Motor Co. in Detroit.

Prior to joining Bell & Gossett, Henke was manufacturer's representative in Illinois, Wisconsin and Indiana for the Gray-Mills Corp.

Lee N. Beardsley has been named factory sales engineer for Delavan Mfg. Co.



He will sell the firm's products exclusively in Wisconsin, northern Illinois, Indiana and western Michigan. In Illinois, his territory will extend from Springfield north. Before joining Delavan, Beardsley was sales manager for the field control division of H. D. Conkey Co.

David G. Dodds Jr. has joined the field sales organization of Superior Valve & Fittings Co.



He will operate out of the company's New York office and will cover territory in New York and New England as an assistant to F. Neil Robson, district manager. He was previously associated with the sale of valves and fittings in the New York territory.

Continued on page 64



TYPICAL EXAMPLE of a properly installed kitchen ventilating hood equipped with grease filters. Note that the filters are installed at an angle to provide a chamber for collecting puffs of fume-laden air and to prevent random grease drippage from the filter faces. A collecting trough is provided at the lowest part of the framework holding the filters.

Commercial Kitchen Ventilating

can put added dollars of profit in the pocket of the refrigeration and air conditioning contractor

by **C. B. Rowe**
Chief Engineer
Research Products Corp.

THE field of commercial kitchen ventilating is a natural "plus" line of business for the commercial refrigeration and air conditioning contractor. With contacts already well established in the food service field, these contractors are in a perfect position to specify and install this "must" line of commercial kitchen equipment.

Proper design, however, is as essential to the successful operation of a kitchen ventilating system as

it is to the operation of any of the mechanically refrigerated equipment in the establishment. For this reason, this article will endeavor to point up some of the basic factors involved in the design of such systems.

The need of a well designed kitchen hood as a part of a kitchen ventilating system has become widely recognized as good practice by most authoritative organizations, and by the local codes of many fire and health departments. Hoods are generally used in most modern commercial kitchens.

The inclusion of filters in the design of the hood is essential for

several reasons, the most important of which are itemized here:

1. Filters prevent grease deposits from forming on blower wheels and blower motors. Blower wheel bearings can be seriously damaged by non-uniform deposits of grease collecting on the blower wheel. Such deposits can cause unbalance of the blower wheel with resulting adverse bearing wear. Grease collections on motor windings can seriously damage insulation in addition to creating a fire hazard.

2. Filters provide a simple, effective means of improvising distribution over the hood base area. The filters inherently present more re-

NEXT MONTH: Details of exhaust hood design for kitchen ventilating systems will be presented

sistance to areas where air flow velocity tends to be high. This results in forcing air to flow to remote areas of the hood which, without filters, would be likely to have little or no air flow.

3. Collecting the air borne grease in a filter prevents grease from collecting in unsightly smudges in areas surrounding the exhaust duct discharge.

4. Good standards of sanitation are greatly facilitated by the use of grease filters. Grease, lint and dust is collected in an easily seen, easily maintained location since practically all of such materials are removed by the filter. The filter can be readily cleaned and it provides a convenient package for carrying the collected materials to where they can be flushed down a drain.

5. The use of grease filters materially reduces the fire hazard which is inherent in a kitchen ventilating system. The high combustibility of grease deposits is, of course, unchanged. However, the amount available for burning is greatly reduced and the deposits are localized for easy access.

Frequent flash fires originating from cooking operations can and do spread from the stove top into the grease deposits in an exhaust system. Without filters, the entire exhaust system can be involved in a damaging fire.

A filtered system is protected from extensive damage because grease deposits are limited in quantity to that collected between filter cleaning (usually once a week), and because this smaller amount of grease is confined to the grease filters and canopy. The balance of the system is grease free and safe from fire.

Unfiltered exhaust systems are prone to collect large accumulations of highly combustible grease deposits throughout the entire duct

system. Because of the chimney effect created by vertical duct work, a very intense, rapid spreading fire can occur in such systems.

A filter-equipped kitchen exhaust system is good business for all concerned — the restaurant owner, the personnel who must work in the kitchen, and the contractor who installs the equipment.

The system is good business for the restaurant owner since it prevents greasy, odorous fumes from

stalling a well made, well designed system. The essentials of a good kitchen exhaust system are enumerated in the following paragraphs:

1. The base of the hood should be high enough above the floor so that the kitchen personnel can walk under it without striking their heads. However, excess clearance between the base of the hood and the top of the range hampers the effectiveness of the hood, and it should be avoided.

2. The base of the hood should be large enough to cover adequately the area in which fumes are generated.

3. The hood should be deep enough to permit installing the filters so that their faces form an angle of at least 45 degrees with the horizontal. Should the deposit of accumulated grease get warm enough to become fluid, or if the filter becomes over-loaded, droplets of grease will run down the face of the filter and drop from the lowest edge. At this point, the grease drippage can be easily collected in a drip trough. This arrangement also permits enough volume in the hood so that unusually large puffs of steam and greasy vapors (such as result when raw potato chips are placed in a French fryer) have a place to accumulate until the exhaust system can handle them.

4. The proper number of a reputable make of filters should be provided. Too many filters unnecessarily increase the cost of the installation, and filters perform best at the velocity for which they are designed. The use of less filters than the job requires results in excessive restriction to air flow and the filters require more frequent cleaning. Most grease filters are designed to handle about 2 cu. ft. of air per minute per square inch of area.

5. Filters should be installed so *Continued on page 57*

**For your file of
PLUS-PROFIT
POSSIBILITIES**

soiling decorations and contaminating the air in the restaurant. Filters in the system make it easy to keep the system clean and fire-safe.

The system is good for employee morale both from the standpoint of carrying off excess kitchen heat and from the standpoint of keeping the kitchen free of greasy fumes.

Most contractors who have entered the kitchen hood business have been pleased with the cash returns. The kitchen hood exhaust system requires extensive sheet metal work in addition to a blower, motor and the required filters. These materials generally add up to a total cash order which is well worth going after. In addition, the work gives the contractor an entree which might be valuable in making later sales of such equipment as air conditioners and food refrigerating equipment.

Realizing the advantages discussed above is contingent on in-

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Cincinnati, Ohio.....	Gary G. Schultz & Assoc.	New York, New York.....	Associated Thermal Products, Inc.
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JULY, 1953 • COMMERCIAL REFRIGERATION

NEWS

OF THE INDUSTRY

KOLD-HOLD BECOMES TRANTER MFG., INC.

Kold-Hold Mfg. Co. has announced a change in its corporate name to Tranter Mfg., Inc., effective at once. The change was voted by stockholders who felt that the Kold-Hold name is not indicative of the diversified line of products manufactured by the company.

James R. Tranter, Kold-Hold president and general

BAKER SEPARATES PRODUCTS LINES

The refrigeration and air conditioning lines made by Baker Refrigeration Corp., South Windham, Me., for the past six years are being separated under a capital change, it was announced recently by Mark E. Mooney.

Two new corporations, Baker Refrigeration Co., and Bakeraire Corp., have been organized to carry on the individual lines, he said.

Under the change, the parent company, American Wheelablator & Equipment Corp., has sold its refrigeration machine business at Little Falls, South Windham, to the newly-organized Baker Refrigeration Co. This new firm will be headed by Jerome K. Jelin of Cincinnati.

The other new corporation, Bakeraire Corp., will continue to manufacture and distribute the air conditioning equipment it makes at its Mallison Falls, South Windham, plant.

No change in personnel is planned for Baker Refrigeration Co., according to Jelin.

"All plant employees, sales personnel, and distributors will be retained," he said, "and headquarters will remain at Little Falls."

Officials at South Windham said the change should increase production and eventually increase employment.

manager who will continue in the same capacities in the company that now bears his name, said the change in name will have no effect on ownership of the company or its corporate structure. The original Kold-Hold product now represents less than a tenth of the total business of the company.

Kold-Hold was founded in 1931 by the late R. E. Olds, founder of the Oldsmobile and Reo car companies. Its sole product then was the "hold-over" truck refrigeration plate. Controlling interest was purchased by Tranter in 1937.

The Kold-Hold name will be retained to identify a division of Tranter Mfg., Inc., producing the hold-over plate and allied products in the refrigeration field. A Platecoil Div. has been established to manufacture and merchandise Platecoil process heating and cooling plates, developed as replacements for pipe coils in many uses.

The Contract Div. will continue to manufacture complete products and components for other manufacturers, including radiant heat baseboards, condensers, evaporators, and other equipment for refrigeration and air conditioning.

H. A. CHANDLER OF MCINTIRE CO. DIES

H. A. Chandler, one of the original founders of The McIntire Co. in 1925, died on June 6, after a short illness.

Until the time of his death, he had acted in the capacity of secretary of the company, as well as sales and advertising manager. He was well-known for many years among refrigeration wholesalers and manufacturers, as well as members of the ASRE.

CAROLAN WILL HEAD ROOM COOLER GROUP

A highly successful meeting of the Room Air Conditioning Section of the Air-Conditioning and Refrigeration Institute was held in Chicago on May 27 with 67 people, representing 35 manufacturing firms, in attendance.

W. F. Carolan of the Radio Corp. of America, was elected chairman of the section. He succeeds H. L. Laube of the Remington Air Conditioning Div. A. E. Meling, Carrier Corp., was elected vice chairman.

The program and discussion was aimed at the further promotion of the room air conditioner business and included the following speakers:

Robert W. Morgan, chief engineer, Fedders-Quigan Corp.; "Engineering Aids to Room Air Conditioner Sales".

Charles Brewer, manager, marketing research, Major Appliance Div., General Electric Co., "The Profit Building Value of Statistics".

J. W. Koonce, manager, service department, Carrier Corp.; "The Service Man in the Room Air Conditioner Industry."

Howard Landis, major appliance editor, Retailing; "The Room Air Conditioner Has a Future".

John Caples, vice president, Batten, Barton, Durstine & Osborn; "How to Get More Out of Your Advertising Dollars".

T. B. Ferguson, vice president, Texas Power & Light Co.; "The Utility Looks at the Room Air Conditioner".

George S. Jones, Jr., managing director, Air-Conditioning and Refrigeration Institute; "How a Trade Association Can Promote the Future of Your Business".

REMA-ACRMA MERGER COMPLETED

L. C. McKesson, vice president in charge of sales, Ansul Chemical Co., was elected president of the Air-Conditioning and Refrigeration Institute at its first board of directors meeting on May 18. He is presently president of the Refrigeration Equipment Manufacturers Association.

A. J. De Fino, general manager of Fedders-Quigan Corp., was elected vice president, and James Emmett, vice president, Jas. P. Marsh Corp., was elected treasurer.

These three officers, with the addition of M. M. Lawler, Worthington Corp., and W. F. Switzer, Frigidaire Div., General Motors Corp., will form the executive committee of ARI.

George S. Jones, Jr., formerly vice president in charge of sales, Servel, Inc., has been named managing director of ARI.

Continued on page 42

BALLY REMODELS PLANT FACILITIES

Bally Case & Cooler Co. has completely remodeled the office facilities and shipping department at the main plant in Bally, Pa. In remodeling one of the firm's original buildings, increased space in the shipping department, including a large mezzanine storage area and a new loading platform have been provided.

A new facade has been added to the front and side, finished entirely with Bally architectural porcelain.

Parking facilities have been made available from land obtained by razings several buildings adjacent to the remodeled structure. Ground for a proposed warehouse has already been broken.

EXECUTIVES INSPECT "HOMEAIRE" GENERATOR



TEST MODEL of the new Shipley "Homeaire" Generator is inspected by C. H. Neiman (left), vice president in charge of engineering, and H. L. Mohn, design engineer, of York-Shipley, Inc. This unit is part of the company's new two-package system for home cooling applications.

* * *

YORK-SHIPLEY HAS SUMMER HOME UNIT

A new 2-package summer air-conditioning system has been developed by York-Shipley, Inc., York, Pa., for installation in Levitt and Sons' development at Levittown, Pa., and is being made available to builders throughout the country.

"The cost of the equipment itself will add less than 3% to the cost of today's modern medium-sized home," S. H. Shipley, president of York-Shipley, stated in announcing the new Homeaire Conditioner.

The new unit lends itself to installation in old homes as well as new. Its design is said to reduce duct work to a minimum.

Capacity of the Homeaire Conditioner for the Levitt homes is 15,700 Btu's per

hour. Installation of the first units in Levittown has started.

The unit requires no water and is installed independently of the heating system. The generator unit is 32" wide, 13-7/8" high and 27" deep, and for exposed installations is furnished with a weatherproof cover. The conditioner unit is 28" wide, 21" high including plenum space, and 23-5/8" deep. It includes among its components an air filter, twin fans and cooling coil.

McQUAY NAMES CHICAGO OUTLET

Automatic Heating & Cooling Supply Co., Div. of Weil-McLain Co., has been appointed distributor for McQuay Inc.'s refrigeration products in the greater Chicago area. The company will maintain a stock of McQuay products in their Chicago and Hammond, Ind., branches.

GENERAL CONTROLS ADDS TO HOME PLANT

The General Controls Co. plant in Glendale, Calif., has been expanded to provide facilities for production of temperature controls for home and industrial use, aircraft controls and valves, refrigeration equipment and other devices in the control field.

MARLO TO CLOSE FOR VACATIONS

The Marlo Coil Co. plant will be open to handle emergency orders for spare parts and to receive material shipments during the plant's annual "vacation" shut-down Aug. 7 through 15. The company will maintain skeleton crews in the plant and office to process mail and handle all wires and telephone calls.

Co.; Fred Weldon, General Controls Co.

Advisory members of the board of directors are: E. M. Flannery, Bush Mfg. Co.; H. F. Hildreth, Westinghouse Electric Corp.; R. H. Israel, Virginia Smelting Co.; R. H. Luscombe, Penn Controls, Inc.; W. A. Siegfried, Superior Valve & Fittings Co.; H. F. Spoehr, Sporlan Valve Co.; K. B. Thorndike, Detroit Controls Corp.

By-laws of ARI were approved at the board of directors meeting on May 19. Committee appointments will be made in the near future.

Following the meeting, L. C. McKesson, president of ARI, said, "We are extremely happy to have accomplished the consolidation of REMA and ACRMA. It brings together over 150 of the leading manufacturers of refrigeration and air conditioning equipment and gives to the industry a united front which we believe will result in greater service to all of our members and in greater and more far-reaching activities."

NEW LOCATION FOR MARLEY IN HOUSTON

The Houston sales office of Marley Co. has been relocated at Suite 1601, Commerce Bldg., Houston, Tex.

Working out of the Houston office are: Roy W. Maze, Gulf Coast manager; J. T. McKinley, O. L. Pratt, and K. C. Gruber, application engineers.

LA CROSSE GIVEN SAFETY AWARD

LaCrosse Cooler Co. has been honored in a national safety award program conducted by their compensation insurance carrier. An engraved plaque was awarded by Employers Mutuals of Wausau, Wis., for LaCrosse's record of only two lost-time accidents in nearly 305,000 consecutive man-hours of operation.

President R. S. Denzer accepted the plaque for the firm.

REFRIGERATION HURT BY WACO TORNADO

Commercial refrigeration dealers were among the worst hit during the incredibly powerful tornado of May 11 which smashed the downtown district of Waco, Tex.

In the refrigeration field, damage varied from the loss of windows and roofs to building collapse. Pictured here is the building of R. P. Teaff Refrigeration, Friedrich dealers on South Third. As shown, the freak tornado snatched out an entire wall on the second floor, lighting areas above the main windows, and caused huge cracks in the first-floor walls. At this writing it appears that the building will be condemned as unsafe. Much damage was caused to cases, compressors, institutional equipment, etc., stored within.

Two blocks away, Turnipseede Refrigeration Co. lost all windows, exploding out in tiny fragments as suction from the funnel whirled over



TEXAS TORNADO wreaked havoc with the headquarters of R. P. Teaff Refrigeration, Friedrich dealer in Waco, as well as with several other local cooling firms.

the building. There were likewise many rips in the roof, and serious water damage in the interior. The store was hastily patched up with errant fragments of metal roofing from other buildings and showroom interior thus saved from deluging with the heavy rainfall.

At South 11th and Web-

ster, Dixie Plumbing Co., distributorship for York products, suffered \$65,000 in damage to inventory when the second floor fell in at the right of the building, smashing many package units and air conditioning parts stored in the area. Every package cooler, for example, was ruined by falling stones, etc.

An estimated 300 refrigerated cases were destroyed in grocery stores, drugstores, meat markets, industrial plants, clubs, hotels, etc., throughout the downtown district.

Refrigeration workers from many surrounding towns were rushed to the job, as was new replacement equipment. It will take months to restore commercial refrigeration to "business as usual" proportions.

GRAZIER WILL HEAD AMERICAN-STANDARD

At a special meeting of the board of directors of American Radiator & Standard Sanitary Corp., Joseph A. Grazier was elected acting president of the corporation to serve as its chief executive officer.

This action was taken because of the continued illness of Theodore E. Mueller, president of the corporation.

Mr. Grazier is presently executive vice president of American-Standard.

NEED

heavy duty, large capacity water level controls? Maid-O'-Mist's No. 6900 series float control diaphragm valves are especially designed for air conditioning equipment, evaporative coolers, air washers, etc., and will accurately control water at any level. Water can be discharged upward or downward as specified.

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1 1/4 gals. to
6 gals. per minute
- ✓ CAST BRASS BODY
- ✓ COPPER FLOAT
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- Cream Freezing-Dispensing
- Equipment Ever Offered

• There's a SWEDEN Speed Freezer to meet every need, every budget:

- Table and floor models.
- Single head machines.
- Double head machines for variety of products, or continuous service of a single product. Single and double heads. Sizes from 4-quart to 5-gal. Batch, continuous and automatic continuous freezers. Advanced design and superior engineering, automatic freezing controls for simple operation. Sturdy construction, and accessibility of all parts for quick easy cleaning are standard SWEDEN features.

- Dispensing soft ice cream, frozen custards, malts and shakes and other long-profit specialties with amazing speed
- . . . a SWEDEN gives more service, requires less servicing. Pays for itself out of EXTRA profits!

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SWEDEN FREEZER MANUFACTURING CO.
Dept. R-4
SEATTLE 99, WASHINGTON

Circle No. 32 on Reader Service Card

HANDLING USED MERCHANDISE . . .

Continued from page 32

A well selected stock of used units, compressors, motors, etc. is a great help during the peak rush periods to use for exchanges. This enables you to satisfy more customers with a smaller labor force. In the field of contract service these same used components play an important part.

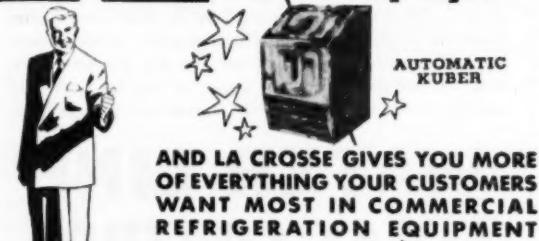
There are, of course, some undesirable factors in handling used merchandise.

1. The amount of time required for selective buying.
2. The greater guarantee expense involved.
3. The fact that not everyone will buy used merchandise.
4. The amount of room necessary for storage, cleaning, etc.
5. The occasional "lemon" that you will buy, regardless of how careful you are.

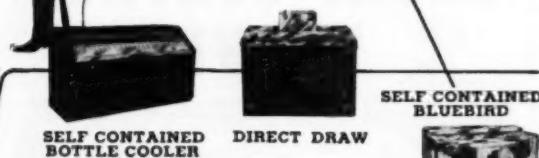
There are a few points to watch carefully. If you know you have a good item, don't get panicky if the sale is slow. Remember, there is always someone who will pay you a reasonable profit. Do not force a sale to one of your regular customers if he really wants new merchandise, even if it means losing that particular sale. Never sell a used item as new.

By following these basic principles, most small organizations can increase not only their yearly volume but also the percentage of profit on that volume.

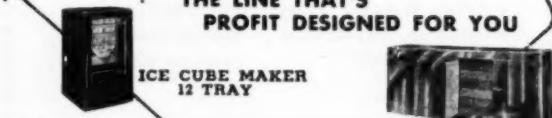
Your Sales are the payoff



AND LA CROSSE GIVES YOU MORE OF EVERYTHING YOUR CUSTOMERS WANT MOST IN COMMERCIAL REFRIGERATION EQUIPMENT



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Chase® Copper Fittings

soldered to Chase

Copper Refrigeration Tube...what could be simpler! And what could be stronger! Why, $\frac{1}{2}$ " Chase Hard Temper Copper Tube and Solder-Joint Fittings have been subjected to a tensile pull of 3,800 lbs. and an internal hydrostatic pressure of over 5,000 lbs. per square inch! You can't beat that for leak-proof, pressure-tight connections.

Write today for Free Illustrated Book "Chase Copper Refrigeration Tube for Refrigeration and Air-conditioning Work."



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Boston	Dallas	Indiansapolis	Minneapolis	Philadelphia	St. Louis	(Sales office only)

Circle No. 36 on Reader Service Card

and AIR CONDITIONING • JULY, 1953

COMMERCIAL Refrigerator SALES NEWS

Open Meat Cases Have Bright Future As Makers Overcome Limitations

A condensation of an address by Harry N. Corbin, retail sales manager, C. V. Hill & Co., at the 7th annual convention of the Refrigeration and Air Conditioning Contractors Association.

ONE of the drawbacks in the development of self-service meat merchandising has been the inherent limitations of the open type display case. With the use of such cases, many factors and problems arose which had to be overcome by the case manufacturers.

We know, for instance, that air temperature in the average store is at a higher pressure than the refrigerated air in the case where the product is being displayed. A constant battle of high pressure air attempting to replace low pressure cold air in the case takes place.

For this reason, air currents set up by open doors, traffic flow, electric fans, or air-conditioning units will produce air turbulence that will cause lack of temperature in certain areas of the display case or an excessive build-up of condensation where the cool air has been forced by these outside factors to contact the outside areas of the fixture which are not insulated or heated.

Open fixtures, cooled by gravity flow, will vary from 1 to $1\frac{1}{2}$ degrees per inch of height from the display deck. Forced convection units will vary $\frac{1}{2}$ to 1 degree per inch of height. These are air temperature readings, operating on the premise that all products are wrapped and carried at proper temperatures in storage areas before being placed into the display case.

With the average height of your display not exceeding 8 inches and operating with the extreme condition of gravity flow, using 27 F at deck, the temperature at the extreme height would only be 39F and it would require four hours for the product temperature to raise to a critical temperature or to drop to the low temperature and freeze.

Considerable time and experimentation has been devoted to the problem of air flow. Several types are now in use by the various manufacturers.

Major Types of Cases

The first type is based entirely on the principle of producing refrigeration to a given area. This type produces excessively high velocity air flow which bounces against and around displayed products spilling from 20 to 50% of the cold air produced to the outside of the fixture. It produces very gratifying air temperature readings, but the product itself will wax cold and warm according to its position in the high velocity air stream.

The second type depends entirely on the natural condition of cold, stratifying itself in a given area. This condition is produced by a box-like structure with no definite air circulation pattern and will vary in its efficiency in accordance with the outside air temperature. When needed most, it becomes least efficient because the outside warm air pressure increases, reducing the cooled area in the fixture.

The third type attempts to overcome as much as possible all outside problems that are introduced around

the fixtures. The greatest loss of refrigeration is from traffic flow. The use of the suction type warm air return at the rear of the case away from the traffic flow has a tendency to overcome action created by it. It is a much slower velocity air and creates a more even temperature in the display area. It introduces the colder air to the underside of the wrapping so that condensation of moisture from the wrapped product will take place on the underside of the package and not on the top to detract from the attractiveness and visibility of the exposed surface.

Flexibility of cases has been a problem. Merchants desired fixtures which could be serviced from the rear to make it easier for the loader and at the same time free the front of the case from congestion. Another factor was the availability of storage to economize on space and refrigeration.

Cases not having any superstructure have to depend on the store lighting for proper illumination. The de-

ONE of the newest trends in the commercial fixture business is the use of color as an effective merchandising aid. Warren Co., Inc., for instance, now is offering blue, ivory, green, and maroon porcelain panels on all of its equipment, and reports that the use of these colors is becoming increasingly popular.

Not only are the cases themselves available in color, but matching or contrasting shades also are available for wall paneling and shelving trim.

How much of an impact does a food market installation in these colored materials, rather than the conventional white, make on the customer? Well, a reporter for one local paper described his visit to one such store by picturesquely saying that "it looked just like an edible rainbow!"

sign of these fixtures is such that they can be properly lighted by the fluorescent lights of the store coupled with incandescent spot lights in order to give softness of tone and an attractive sparkle to the meat.

Today, as you know, many of the major obstacles in the manufacture of open type meat cases have been overcome, but there are still new ideas coming forth which will necessitate further changes on equipment.

The development of adequate open type meat cases has been hurried

along by the rapid strides made by the manufacturers of wrapping materials plus the keen interest shown by all the large packing houses.

Public acceptance of self-service meats is no longer a problem. Formerly it was recommended that a store had to be doing \$2,000 meat business per week to be successful in self-service. Today, almost any store which sells meat can increase its volume by the introduction of self-service.

Self-Service Gains

The fifth annual report on self-service meats recently produced by Armour & Co. indicates that there were only 178 100% self-service meat stores in 1948; 878 in 1949; 1983 in 1950; 3972 in 1951; and 5363 in 1952.

This report further shows that while only 2½% of all stores handling fresh meats now have a 100% self-service operation, they do almost 14% of the total retail meat business in the U.S.

Due to building restrictions, fewer super markets were opened in 1952 than in 1951, but a greater proportion of them opened with 100% self-service meat operation. The percentage figures on this follow:

1951

47.2% complete self-service (meat)

31.8% partial self-service (meat)

21.0% complete service (meat)

1952

54.9% complete self-service (meat)

29.1% partial self-service (meat)

16.0% complete service (meat)

The success of self-service meat operation has shown its effect on bakery departments, prepackaged fruits and vegetables, self-service beverages, and even hardware and kitchen supplies.

Rosy Prospects Cited

All indications point to a continued bright future for self-service meat. At the present time our company manufactures open type meat fixtures at a ratio of 6 to 1 over closed service fixtures.

We expect a continual growth of self-service meat operation because we feel it is basically sound and is past the experimental state. It is one of the answers to labor shortage, reduces labor costs, saves time for the customers, gives greater freedom of selection, and gives a wide variety of

meats for the customer. As for the merchandiser himself, he can successfully sell every part of a quarter of beef as well as most of the parts of fowl.

Frozen meats are still in their infancy, although they are making rapid strides and appear more frequently in the display cases throughout the U.S. Frozen meats may be one of the answers to keeping meat properly over a long period of time.

At the high temperature level, it is now almost impossible for the packer to cut and ship meat in its

natural state, but it could be done in the frozen state. The growth of this frozen meat business will be an interesting one to watch in the next few months.

CHICAGO AJAX WILL DISTRIBUTE SELMIX

The Chicago Ajax Co., 627 W. Jackson Blvd., Chicago, has been appointed by Selmix Dispensers, Inc., Long Island City, N.Y., as the exclusive franchised distributor of



More beer sold from every keg with Beverage-Air DRAFT SYSTEMS

It's a fact! Thousands of satisfied users over the country are claiming 20 to 30 more glasses of beer from each keg with Beverage-Air Draft Systems . . . more and more breweries are selecting Beverage-Air equipment for use in visitor's rooms and at trade conventions.

Why? Because Beverage-Air Draft Systems are designed to eliminate waste through . . .

- Patented "air-conditioned" faucets that keep the beer cooled to the correct serving temperature . . . never any wild, warm or stale beer.
- Unrestricted, one-size flow lines and tap rods assure a smooth even flow of beer . . . less than 1 oz. of beer contained in the lines from the faucet tip to the keg, the perfect storage place.

With these economy features, Beverage-Air installations pay for themselves in no time at all.

WRITE TODAY FOR COMPLETE INFORMATION ON BEVERAGE-AIR EQUIPMENT AND DIRECT MAIL LITERATURE FOR MAILING TO YOUR CUSTOMERS.

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PUNXSUTAWNEY, PA.

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Mr. Distributor . . .

This ad, now running in leading trade journals, is bringing in leads! Will YOU follow them up? We will send you SNO-MASTER machines to accommodate free home trial requests on MEMO! Write for details!

\$100 Profit

and more, every week,
selling Sno-Balls, Sno-Cones,
and Freeze Drinks, made with

SNO-MASTER

Sanitary ICE SHAVERS

- You can make \$8 profit on every 10¢ Snowball, 12¢ profit on every 15¢ Freeze Drink! Sno-Master machine takes only one square foot of space in use by leading drug and chain stores everywhere!



FREE TRIAL!

TRY Sno-Master, FREE, no cost, no obligation! Write for details, including FREE Recipe Book! Include name of your equipment jobber.

SNO-MASTER

124 HOPKINS PLACE

Dept. CR Baltimore 1, Md.

Selmix-Barmaster dispensing equipment for Cook County, Chicago. Ajax is the exclusive distributor of the Ajax Electric Iceman, manufactured by Servel, Inc.

The announcement was made by W. C. Dunn, president of Chicago Ajax Co. and Arthur Freedman, national sales manager for Selmix.

FREEZERS BOUGHT FOR N.Y.C. BONE BANK

Two standard Amana food freezers have been ordered by the New York City Department of Hospitals for use in its bone bank and tissue surgery program.

The two upright 12-cu. ft. freezers will be used to sharp freeze and protect the human bone and tissue used in advance surgery in all New York City Hospitals, it was explained by Harvey Farber, president of Amana Products Corp., New York area distributor.

The two freezers, equipped with certain adjustments to permit use of recording instruments, are guaranteed "to maintain a temperature of 15 below zero".

COMMERCIAL PACKAGED COOLING SALES GAIN

General Electric's Air Conditioning Div. has reported its best first quarter on record.

F. J. Van Poppelen, general manager of the G-E division, said that orders received to date are running far ahead of the corresponding period of any previous year.

The biggest gain, he said, has been in packaged units for commercial and industrial air conditioning with more than five times as many orders received this year than during the first quarter of 1952.

The picture was equally bright in the comparatively new and rapidly expanding home cooling field, he said.

The company, he said, is currently selling home cooling equipment at several times its planned rate and has had to revise its original production schedules upward in the light of increasing demand.

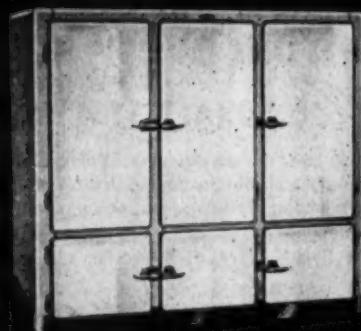
The G-E official said he thought the situation was typical of the industry and that the greatest problem facing manufacturers now was keeping up with demand.

He estimated that about 50,000 homes would be completely air conditioned this year.

FOR DEPENDABLE SERVICE YEAR AFTER YEAR!

Choose the

P-H LINE



with
"Grad-U-Matic"
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CONDITIONING
"Lifetime"
PORCELAIN OR
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More and more — hotels, schools, cafeterias and institutions of every type are turning to the famous P-H Line for refrigerators that will stand up and take it, year after year! Choice of 51 Reach-In Models from 20 to 90 cu. ft. capacity — Remote or self-contained. See your nearest P-H Dealer.

Write for illustrated Brochure on Genuine P-H "Lifetime" Porcelain Enamel Finish and "Scratch-Stain" Test.



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Circle No. 38 on Reader Service Card

AMANA EXPANSION PLANS

Amana Refrigerating, Inc., has recently announced a \$3,500,000 expansion program that will double the size of its plant facilities and treble its production of food freezers. New buildings will add 200,000 sq. ft. of floor space to the factory's present 170,000 sq. ft.

HILTON WILL MANAGE SERVEL-NEW YORK

Paul A. Hilton has been named general manager of Servel-New York Corp., distributing subsidiary for Servel, Inc., in New York City, Long Island and Westchester.

Previously Hilton was general manager and assistant to the president of Audio & Video Products, Inc.; assistant general manager and controller of Crosley Distributing Corp.; controller of Bowman, Durham, Robbins Inc.; and senior accountant with Phillips and Avery.

Chicago and Cleveland RACCA Members Discuss Mutual Problems

WHAT may well be the forerunner of a series of inter-city contractor meetings was held in Chicago May 15, when 10 members of the Cleveland Refrigeration & Air Conditioning Contractors Association met with the Chicago RACCA group for an evening's discussion of mutual business problems. All of the Cleveland men came to Chicago expressly for the purpose of attending the joint meeting.

The following Cleveland men were in attendance: Sam Aub, Curt Blair, Ernest W. Farr, Warren W. Farr, Glen Keller, Art Rimbach, E. Vadakin, Paul Decker, Leon Smylie and John Tyler.

A get-acquainted cocktail hour was held prior to the dinner in Chicago's University Club. The affair started off as a grand party, with the meeting following dinner.

Annis Briefs Activities

Introductions were made by President John Annis of the Chicago association, of all present, after which he briefed the activities of the Chicago group over the past year or two, and invited questions and open discussion.

Committee chairmen of the Chicago association gave reports for each of their committees, and here again the activities of the two associations were compared through a series of questions and answers. It was interesting to note the similarity of problems confronting both groups, even though located in distant cities. Every man present expressed great satisfaction in having attended the meeting and agreed that much good had come of it. Numerous constructive suggestions were made; many of the individuals received answers to their problems, and found new angles of approach.

Lengthy discussions were held, participated in by all, on numerous trade relations, labor relations and apprenticeship problems; cooperation with other allied groups in the industry; and illegal practices of

dairies and other food handlers in selling refrigeration equipment.

The meeting was turned over to William L. Long, chairman of the program committee for Chicago, who conducted an open discussion on several surveys which had been made by the Chicago association. The first was a comparison of bids which had been submitted by members on a typical air conditioning installation, specification and plan for which had been sent to each member. It was found the bids submitted closely paralleled each other; and the survey evoked some mighty interesting points.

The other survey, "Arriving at Service Charges", might well serve as a guide for contractors in other sections of the country. The Cleveland men indicated they felt it was a good basis for computing charges (on service work only) and probably would be applicable to most sections of the country.

COSTING DATA AVAILABLE TO RACCA MEMBER FIRMS

The national office of Refrigeration & Air Conditioning Contractors Association has inaugurated another activity for members in estimating costs, on installation of equipment, and has issued the first three pages of what will eventually comprise a booklet of all operating features in a contractor's business.

The sheets are 6 x 9½ in. in size and are punched to fit a standard-size binder. All national RACCA members have received a set of these costing sheets, and will continue to receive subsequent sheets as they are issued.

DATA ON RACCA ACTIVITIES AVAILABLE UPON REQUEST

The national office of Refrigeration & Air Conditioning Contractors Association has announced that it has available considerable informa-

NEWS • ACTIVITIES • PLANS

CONTRACTORS

tion on RACCA activities, which it will furnish to any interested contractor upon request. A sample of the RACCA monthly News Letter, covering information of both national and local contractor association activities, will also be sent to contractors who ask for it. Requests should be made to Refrigeration & Air Conditioning Contractors Association, 228 N. LaSalle St., Chicago 1.

HARRIS NEW DIRECTOR OF CONTRACTOR GROUP

Charles C. E. Harris, of Harris Refrigeration, Cambridge, Mass., has been elected to the board of directors of Refrigeration & Air Conditioning Contractors Association to fill a vacancy created by the resignation of A. G. Dienstl, of Bridgeport, Ohio. Dienstl has retired from active business after 35 years in the refrigeration and air conditioning field.

**BUY FROM YOUR
REFRIGERATION WHOLESALER**

RACCA TO MEET IN CLEVELAND IN NOV.

The 8th annual convention of Refrigeration & Air Conditioning Contractors Association will be held Nov. 8 to 11 at the Hotel Carter, Cleveland, during the All-Industry Refrigeration and Air Conditioning Exposition. Program chairman is Ernest W. Farr, of Bell Refrigeration Corp., 18526 Detroit Ave., Cleveland 7. All requests for reservations are being handled by Farr, the RACCA office announces.

NAVY'S 2 NEW CARRIERS TO BE AIR CONDITIONED

Both of the Navy's new aircraft carriers, the U.S.S. Forrestal and the U.S.S. Saratoga, will be air conditioned.

Carrier Corp. has been awarded the contract for the second of the two — the U.S.S. Saratoga. The U.S.S. Forrestal contract was awarded the same firm several months ago.

Six centrifugal cooling machines will be installed in each of the

carriers to handle the air conditioning, and seven reciprocating units will take care of ships' stores refrigeration and the cooling of drinking water.

The twin carriers will be the largest fighting ships ever built.

GETS TVA CONTRACT

A \$406,000 order for mechanical draft fan equipment for the Tennessee Valley Authority has been received by Westinghouse-Sturtevant Div.

The order calls for four induced draft and four forced draft fans, four 700-hp and four 170-hp Westinghouse motors. All equipment will ultimately be installed in the John Seaveer's Station at Rogersville, Tenn.

APPEALS COURT UPHOLDS AIR DIFFUSER PATENT

The 9th Circuit Court of Appeals, in San Francisco, on May 27 reversed the judgement of the District Court for the Southern District of California and held that Patent

DISTRIBUTORS OF

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MICROMOTORS

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REPLACING OLD WORN-OUT MOTORS

THE BIG NAME IN SMALL MOTORS

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420 Lexington Ave., New York 17, N.Y.

Looking for help in replacing those old worn-out motors? Distributors of Redmond products are centers for information on how to apply Redmond Micromotors and Blowers to obtain best results. They will help you make the right selection from the wide variety of Redmond models. Shaded pole Micromotors for AC operation are in sizes up to 1/10th horsepower, and Blowers turn out up to 220 cubic feet per minute.

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JULY, 1953 • COMMERCIAL REFRIGERATION

YOU PROFIT BY
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in **15** years

of Packaged Air Conditioning Pioneering

One of the First in the Industry



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CURTIS REFRIGERATING MACHINE DIVISION

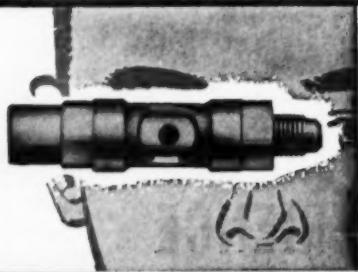
of Curtis Manufacturing Company (Since 1854)

1915 Kienlen Avenue • St. Louis 20, Mo.

748

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I am interested in direct factory franchise. Send complete details.	
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City.....	Zone..... State.....
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**LIQUID EYE**

now available in standard
3/4" HEX SIZE
for EASIER, QUICKER installation on refrigeration lines.

here's the difference!

NEW DESIGN
Hex same size as housing diameter to take care of wide-jaw wrenches.

OLD STYLE
Hex smaller than glass housing diameter.

LIQUID EYE®**means:**

- Perfect refrigerant visibility
- Straight-through flow
- Leak, shock, vibration proof
- High safety factor
- Spring loaded gaskets
- Instant analysis of refrigerant condition

Complete line from $\frac{1}{4}$ " thru $\frac{3}{8}$ " flare and O.D.S.
Sold by Leading Wholesalers. Send for Catalog B-52 covering the complete Allin line.

Allin MANUFACTURING COMPANY
1153 West Grand Ave., Chicago 22, Ill.



SEE PAGE 8

2,240,617, owned by Air Devices Inc., of New York, was valid and that it was infringed by the defendants, Air Factors, Inc., of Los Angeles, and ordered an injunction and an accounting for damages. Air Devices Inc. manufactures the Agit-air diffuser covered by the above patent.

O'DONNELL CO. A NEW CARRIER DISTRIBUTOR

The O'Donnell Heating and Air Conditioning Co. of Syracuse has been appointed by Carrier Corp. as its exclusive distributor for 16 counties in central New York State.

The Cooney Co. of Syracuse will continue to sell Carrier equipment, particularly the larger type of installations. Similarly, Refrigerated Equipment Distributors will continue to sell Carrier's commercial refrigeration and ice maker lines in Syracuse.

The O'Donnell Heating and Air Conditioning Co. is a subsidiary of E. M. O'Donnell Co., long-time distributors of automobiles and major appliances. The new firm will be managed by Frank B. Clark. E. M. O'Donnell is president of the parent firm.

Other firms in the surrounding counties who will continue to sell and install Carrier equipment within the O'Donnell distributorship area are: Utica Oil Heating in Utica; Crowley Brothers in Auburn; George B. Hyde Co., Watertown, N.Y.; Cope-land Oil, Plattsburg, N.Y.; Electric Shoppe, Malone, N.Y.

WESTINGHOUSE OFFERS "SHOW" DISPLAY KIT

The Air Conditioning Div. of Westinghouse Electric Corp. is offering distributors a display kit that converts stock models of Unitaire air conditioners to models suitable for exhibition at trade and home shows.

The kit consists of a plexiglass front panel plus lighting fixtures for internal illumination of the unit. They are available for all sizes of Unitaire conditioners.

BUY FROM YOUR REFRIGERATION WHOLESALER



Bending REVERE **DRYSEAL** REFRIGERATION TUBE is much easier!

You don't have to go in training to be able to bend dead-soft Dryseal. Just use your head when you order Refrigeration tube. Specify Dryseal! Then just use your hands to bend it . . . it's as easy and simple as that. The special temper and ductility of Dryseal also make it easy to flare for compression fittings without splitting.

Another very important feature of Dryseal is the double-crimp seal at each end of the tube. This is the final step in manufacturing and keeps dirt and moisture from entering the tube. The seal is made in such a way as not to change the diameter of the tube so that it can pass through any opening large enough for the tube itself.

And, for your greater convenience, Dryseal is packed in a nifty-50 one-coil carton. This carton, which has been attractively designed for easy identification in stock, contains one 50-foot coil of Dryseal . . . is easier to handle, light weight, economical and is sturdily made to assure protection of the tube.



REVERE
COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801
230 Park Avenue, New York 17, N. Y.

Mills: Baltimore, Md.; Chicago and Clinton, Ill.; Detroit, Mich.;
Los Angeles and Riverside, Calif.; New Bedford, Mass.; Rome, N. Y.—
Sales Offices in Principal Cities, Distributors Everywhere
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On-the-spot
sales and
installation
helps from

BENDIX-FRIEZ



HUMIDITY AND TEMPERATURE RECORDERS

Selling and installing air conditioning, refrigeration and heating equipment is much easier with the help of modern tools like these. First, they give the prospect *visible proof* that he has a need for temperature and humidity control. Then, after the sale, they give *visible proof* that his installation is working properly. You can rely on Bendix-Friez instruments—products of the world's oldest, largest manufacturer of precision weather instruments.

BENDIX-FRIEZ PORTABLE TEMPERATURE AND HUMIDITY RECORDER

Model 160



Furnishes easy-to-read 3" x 5" charts good for 10 or 30 hour records. As easy to carry as a camera. Built to U. S. Weather Bureau standards.

BENDIX-FRIEZ MOTOR- ASPIRATED PSYCHROMETER

Model 573

This handy instrument provides fast, accurate humidity readings. Requires no special skill to operate. Ideal for taking readings in confined areas.

FIND OUT TODAY HOW BENDIX-FRIEZ PRECISION INSTRUMENTS CAN HELP YOU

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Baltimore 4, Maryland

EXPORT SALES: Bendix International Division
72 Fifth Avenue, New York 11, N.Y.
Circle No. 44 on Reader Service Card

LEAK-PROOF JOINTS . . .

Continued from page 36

erties for soldering copper water tube and fittings, including flow, joint penetration and high strength, but they are relatively expensive. A variety of alloys are available that meet the requirements but are less expensive.

These proprietary alloys may be used as solders without flux, provided that tube and fitting surfaces are clean. If flux is used, they will "wet" tube and fitting surfaces and assure better flow and penetration of the joint.

Apply Flux Carefully

Although there are a number of excellent prepared fluxes available, a satisfactory flux consists of a mixture of powdered borax and alcohol or water that forms a thin milky solution. It may be painted on to provide a thin film for good hard soldering.

Care should be taken to control the amount of flux so that it will not "load up" and cause uneven distribution of solder. Excessive amounts of flux tend to fillet and cause faulty joints.

Hard solders do not penetrate the full depth of joints as readily as soft solders but because of their physical strength nominal penetration of $\frac{3}{8}$ " or so is usually adequate. The high temperatures required to flow hard solders also tend to anneal the tube at or near the joint so that a well-filletled joint has greater strength than the annealed tube at this point.

Pre-Heating Is Advised

Blow torches and air-gas torches are suitable for hard-solder joints up to 1" in diameter, but oxy-acetylene flames are recommended for larger sizes. The flame should be moved over the entire joint until it is uniformly heated to a dull red, if fittings are of 1" diameter or less.

Preheating of all joint and adjacent fitting surfaces is good practice for larger fittings, after which about 2" or so of the joint circumference should be heated to a dull red. High-temperature oxy-acetylene flames should be kept moving a slight distance from the

joint to prevent spot melting while hard solder wire is applied.

Underheating tends to "ball" or load up solder and cause inadequately "wetted" surfaces. Excessive heating may cause cracking in cast alloy fittings or effect a surface condition so that solder flow and adherence is unsatisfactory.

Low flame pressures are recommended to prevent wasteful spreading of the solder. Good penetration of the joint is aided by moving the flame back over the area toward fitting shoulders. A fillet may then be formed at the fitting edge when solder ceases to flow into the joint. Then the joint should be allowed to cool.

Wrought copper fittings may be chilled rather quickly but cast brass fittings should cool slowly in air to reduce thermal stresses.

TRANE COLUMBIA, S.C. SALES OFFICE MOVED

The location of the Columbia, S.C. sales office of Trane Co. has been moved to 2740 Devine St. Arthur M. Suggs, sales engineer, is in charge of the office.

SALES AID FOR TOOLS



SILENT SALESMAN for hand tools is this new floor display merchandising unit introduced recently by Bonney Forge & Tool Works. Called the Tool Peddler, the display is a center-of-aisle unit, stocked on two sides. Three shelves of tools are displayed on each side with a rack below for heavy, complete tool sets. The unit is designed to cut down sales time and step up sales volume for wholesalers handling the company's regular tool line or the new Bon-E-Con economy line.

MEET THE NEW CHAMP

*The MIGHTY TEMPRITE
"BANTAM 100"
CARBONATOR*

**PACKS A REAL
SALES PUNCH**

Weighs 28 lbs.



13½" long x 9½" wide x 12" high.

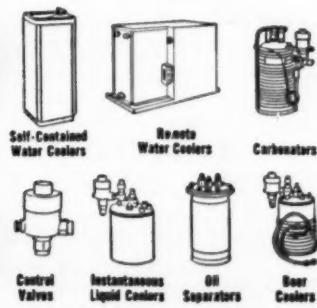
FULLY AUTOMATIC, delivers up to 100 gallons per hour of highly carbonated water . . . for a sparkling beverage that's a pleasure to serve and a double-pleasure to drink! Use with any type cooling system.

COMPACT, easy to handle! Little space required. Pump and motor, relay and carbonator assembled together for the simplest possible installation.

SAVES REAL MONEY, because of high-capacity operating efficiency, plus other cost-conserving features!

BIG ACTIVE MARKETS FOR YOU! Soda fountains, roadside stands and drive-ins, restaurants, bars and taverns, home recreation rooms and vending machines—they're all ready for Temprite's mighty power-packed "Bantam 100"!

Since 1929
Temprite
PRODUCTS CORPORATION
BIRMINGHAM, MICHIGAN



Circle No. 45 on Reader Service Card

and AIR CONDITIONING • JULY, 1953

TEMPRITE PRODUCTS CORP.

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Birmingham, Michigan

- Send me data on the Temprite "Bantam 100" Carbonator.
- Ask your representative to call.

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Address _____ Zone _____

City _____ State _____

FIRST IN ITS FIELD

1/2 HP
MODEL
SM 49



A-1 FEATURES
that make SELLING EASIER,
PROFITS SWEETER, when
you SWITCH TO SERVEL . . .

- BUILT-IN LUBRICATION SYSTEM — protects every vital point — no manual oiling.
- OIL-FREE REFRIGERANT — no damaging oil "sludging."
- CUSHIONED QUIET — special mountings assure continued smooth operation.
- EXTRA-COMPACT — easy to install and check — saves valuable space.
- LOW-COST WARRANTY — with full factory-backing.
- WIDE LINE — models for every commercial refrigeration use — $\frac{1}{4}$ to 3 HP.
- OVER 100 AUTHORIZED WHOLESALE SUPPLIERS — service you want when you want it.

Servel
SUPERMETIC

Sturdy, streamlined, light in weight — Servel's new SM49 fills a long-felt need in the store fixture and beverage fields. Here at last is a $\frac{1}{2}$ HP single-cylinder, hermetically sealed medium temperature unit that is truly compact. Over-all height only $13\frac{1}{8}$ "; length $20\frac{1}{8}$ "; width 17". Net weight 105 lbs.; crated, 120 lbs. Furnished for either 115- or 230-volt, single phase, 60-cycle (115-volt furnished as standard). The same sound engineering . . . that for nearly a third of a century has made Servel products unequalled for long-lived dependability . . . will be found in this new unit in full measure. In every way, the new SM49* is first in its wide-range field! See your nearby Servel Authorized Wholesaler for full details, or write the factory now.

* Model SL49A, for low temperature applications, available on special order.

Servel

SERVEL, INC., ELECTRIC REFRIGERATION DIVISION
DEPT. C-7 • EVANSVILLE 20, INDIANA

THE NAME TO WATCH FOR GREAT ADVANCES
IN REFRIGERATION AND AIR CONDITIONING

KITCHEN VENTILATING . . .

Continued from page 39

that they can be easily removed for cleaning. Most filter manufacturers will provide handles, if they are requested, to facilitate handling filters. Frequent cleaning is essential. In most restaurants where continuous cooking is carried on, the filters should be cleaned at least once a week. This keeps deposits of grease from baking on, and also keeps the resistance to air flow of the filter down to where the hood exhaust fan can function properly.

6. The filters should be located high enough above sources of heat such as gas burners, broilers, etc. to assure that they do not become



excessively hot. Over-heating causes the accumulated grease to run off of the filters or to vaporize and pass through the filter. It also materially shortens the life expectancy of the filter and contributes to a fire hazard.

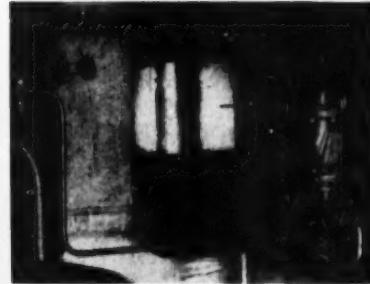
7. The duct leading from the kitchen exhaust hood to the point where the exhaust air is discharged should be sized to keep the velocity of the exhaust gases and cooking by-products high enough to minimize the condensation of cooking by-products on the various parts of the exhaust system. The use of excessively high air velocities in this duct should be avoided because of the resulting noise and because more power is required to drive the blower. Elbows used in this ducting should have a radius equal to or



STOPS CONDENSATION DRIP

Yes, indeed, it takes care of the vexatious drip problem connected with cold water pipe installations. NoDrip Tape is pliable, cork-filled, 2" wide. When wound around pipes, it forms a tight fitting, moisture-proof jacket. Holds temperatures steadier, eliminates icing and frosting, prevents rusting, keeps pipes and floors dry.

Just the thing for pipes and suction lines running from refrigerating machines to condensers.



Use on refrigerant lines in air conditioning systems, walk-in freezers, deep freezers and on basement cold water pipes.

EASY TO APPLY

You don't need tools, brads or experience to apply NoDrip Tape. Just wrap it around pipes and press into place with your hands. Anybody can do it. Try a roll on a short section of pipe and compare with uncovered portion.

EFFECTIVE IMMEDIATELY

Follow the easy application directions on the package and you'll be surprised at results. You'll not be bothered with drip any more.

ORDER THROUGH YOUR SUPPLY HOUSE

Write for interesting Circular

J. W. MORTELL CO.

Technical Coatings since 1895

533 Burch St.,

Kankakee, Ill.

\$1.69

Higher west
of Rockies &
Canada

MANUFACTURERS and
SERVICE ENGINEERS

NoDrip Tape has been used for years on production lines of leading refrigeration equipment manufacturers. Investigate its many advantages.

Circle No. 47 on Reader Service Card



LARKIN HUMI-TEMP UNIT

For clean, smart lines, satin-smooth finish, harmonious color and overall good looks—Larkin leads. Behind this beauty is the quality and performance that keeps Larkin out in front!

Manufacturers of the original Cross-Fin Coil
• Humi-Temp Units • Frost-O-Trol Hot Gas Defroster • Evaporative Condensers • Cooling Towers • Air Conditioning Units and Coils • Direct Expansion Water Coolers • Heat Exchangers • Disseminator Pans.



SPECIFY
DELAVAN
WHEN YOU NEED
PARTS FOR
COLDSPOT

Save time. Save money.
Order all parts for Coldspot Compressors from
DELAVAN.

WRITE FOR
CATALOG 50B

DELAVAN
MANUFACTURING CO.
GRAND AVENUE & 4TH ST.
WEST DES MOINES, IOWA

greater than 150% of the duct diameter.

8. Free edges of the hood should be turned back, faced, or otherwise guarded to prevent injury to personnel.

9. To minimize leakage of extraneous air into the exhaust system, it should be made as air-tight as possible. The holding device for the filters should be made in a manner to prevent air from bypassing around the sides of the filter. For the same reason, it is desirable to locate the exhaust fan as close as possible to the exhaust hood. However, noise and space requirements frequently necessitate locating the fan on the roof of the building.

Fabricating the Hood

10. Hoods and ducting should be made of non-combustible materials, with tight joints. The National Board of Fire Underwriters recommends the use of 18 ga. steel. Hoods and ducts should have a clearance of at least 18 inches from all unprotected combustible material.

11. The ducts should lead as directly as possible outside and should constitute an independent system not connected with any other ventilating system. Hand-holes, equipped with tight fitting doors and located not more than 20 feet apart, should be provided in all horizontal duct sections to permit inspection and cleaning.

Erecting Vertical Ducts

12. Vertical duct sections should be located outside of and adequately supported by the exterior building wall. If vertical ducts are unavoidably installed inside the building wall, the National Board of Fire Underwriters recommends enclosing the duct in a shaft, preferably constructed of masonry at least the equivalent of 4" hollow tile. This inclosure should extend continuously from the first floor pierced and through the roof. Access openings at each duct clean-out point should be provided. A trap should be provided at the base of all vertical runs. Exhaust ducts should not pass through fire walls.

13. The exhaust blower and motor combination used must be of the proper size and type to handle the required volume of air against

the maximum static pressure which will be encountered. It should also be kept in mind that the resistance to air flow caused by the filters increases as they accumulate their grease load. Consequently, in determining the resistance against which the blower must operate, the resistance of a loaded filter rather than a clean filter should be used.

The size and model of the fan required, the rpm at which it must run, and the size of the motor required to drive it can be found by referring to a fan catalogue. These catalogues are published by the manufacturers of all well known makes of fans and blowers.

While the use of propeller type fans is tempting from the economy standpoint, their use in kitchen hood exhaust systems should be generally avoided since they do not work well against static pressures of the magnitude usually encountered in these systems.

Selecting a Blower

In selecting a blower, it will be found that a great many types and models are available. Very extensive detail would be required to discuss all of the considerations which influence the performance and thus the choosing of a blower. However, for most kitchen exhaust systems a single inlet, single width, horizontal discharge or upblast fan equipped with a slow speed (forward curved blade) wheel will be satisfactory.

When fans of this type are used, the drive motor should be equipped with an overload cut out, since the power requirements of these fans is such that the drive motor might be overloaded if the exhaust system is turned on while the filters are not installed. In areas where winter weather is severe, it is advisable to install a two-speed motor on the blower to permit slowing down the blower on severely cold days.

DR. W. D. PETERSON TO HEAD ESTON RESEARCH

Research activities of the Eston Div. of American Potash & Chemical Corp. have been transferred to the Whittier, Cal. laboratory. Activities will be under the supervision of Dr. W. D. Peterson, assistant director of research, Eston Div.

OPPORTUNITIES

(Classified Advertising)

Rates: for "Positions Wanted, \$4.00 minimum, limit 25 words. For all other classifications, \$4.50 minimum for 25 words or under, each additional word 15¢; boldface type or all capitals, \$7.50 minimum for 25 words or under, each additional word 20¢.

TRAINING AVAILABLE

Course on sealed unit rebuilding trade secrets disclosing exclusive methods for all operations. \$12.50 or write for details. H. Custer, Box 98, Center Line, Michigan.

DISTRIBUTORS WANTED

MIDWEST COMMERCIAL REFRIGERATOR MANUFACTURER WITH NATIONAL DISTRIBUTION CURRENTLY HAS AN OPEN SPOT IN THE STATE OF IOWA FOR A STATE-WIDE DISTRIBUTOR, PREFERABLY CENTRALLY LOCATED. CONSIDERATION WILL BE GIVEN TO ANY INQUIRER WITH SUFFICIENT CAPITAL TO DO A JOB IN KEEPING WITH THE POTENTIAL OFFERED BY ONE OF THE MOST COMPLETE COMMERCIAL LINES ANYWHERE IN THE COUNTRY. WRITE GIVING INFORMATION ON SHOWROOM AND WAREHOUSE FACILITIES, SALES ORGANIZATION, ETC., AND FULL DISCUSSION CAN BE ARRANGED FOR EITHER YOUR OFFICE OR AT THE FACTORY. (BOX 7153 COMMERCIAL REFRIGERATION AND AIR CONDITIONING)

A British Company marketing a range of small brine type Freezer plants for ice lollipop manufacture, are desirous of contacting a suitable firm interested in importing and distributing in the U. S. A. These Freezers, incorporating a storage compartment, are particularly suitable for medium size and small stores, clubs, cafes, restaurants, etc., which prefer to manufacture

their own lollipops and keep all profits at home. Thousands of these cabinets have been sold through the refrigeration trade in the British Isles and they are suitable for standard $\frac{1}{4}$, $\frac{1}{2}$ or $\frac{1}{2}$ -hp compressor units. Interested parties are asked to contact the Aero Pipe & Glass Company, Limited, A. P. G. House, Harlesden Road, London, N. W. 10, England.

POSITIONS AVAILABLE

An opening exists in the Eastern States in our Service Department. A complete knowledge of the fundamentals of commercial refrigeration are required, plus sufficient background to accomplish trouble shooting assignments. This is an excellent opportunity for the qualified individual. Please furnish complete personal, educational, employment and earnings information in your reply. Tyler Fixture Corporation, Personnel Office, Niles, Mich.

The services of a man with a well-rounded background in commercial refrigeration are required for the responsibility of preparation and assembly of educational literature for dealer and user utilization. Please furnish complete personal educational, employment and earnings information in your reply. Tyler Fixture Corporation, Personnel Office, Niles, Michigan.

EQUIPMENT FOR SALE

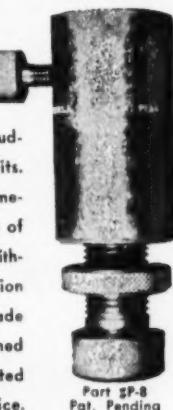
FOR SALE: Practically new, $9\frac{1}{2} \times 9\frac{1}{2}$ Vilter ammonia ice machine, complete with 100 horsepower electric motor, all controls, and control panel. In first class condition. A real bargain at our price. LAKE-SIDE STEEL IMPROVEMENT CO., 5418 Lakeside Ave., Cleveland 14, Ohio.

**BUY FROM YOUR
REFRIGERATION WHOLESALER**



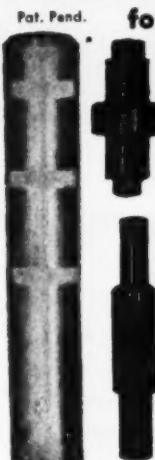
VANE FILING FIXTURE FIT COLDSPOT VANES IN FIVE MINUTES

This tool is micro adjustable to all of the sizes of vanes including those of sealed units. Even an UNSKILLED mechanic can in a matter of 5 minutes do the job within the extreme precision of .0001 of an inch. Made of finest case hardened tool steel, heavily plated to insure lifetime service.



Part #P-8
Pat. Pending

DRIVE IN-OUT SET for COLDSPOT BEARINGS



Part #P-3
Especially designed to drive in or drive out compressor bearings. Will not mar or damage the bearing, housing or seal seat. Precision made of high grade steel and heavily plated with knurled handle. Reversible drive in and out tips for $13/32"$ and $15/32"$ bearings.

complete set
3 pieces

Available at Your Jobber



Wagner Tool & Supply Corp.,

REFRIGERATION PARTS AND TOOLS

40-08 22nd ST., L. I. City, N. Y.

NO MORE FREEZE-UPS
of expansion valves or capillary tubes!

ICE-X works like magic
SERVICE MEN SAY: "ICE-X IS GREAT!"



When ice forms in expansion valves or capillary tubes, ICE-X is a sure remedy . . . ICE-X is non-corrosive —harmless to parts. An ice-eliminator that can't be beat for Freon, Carrene, or Methyl Chloride systems . . . Order from your jobber. If no jobber, order direct.



*Service doesn't falter
when it comes from Harry Alter*

Jobbers: Ask for special offer!

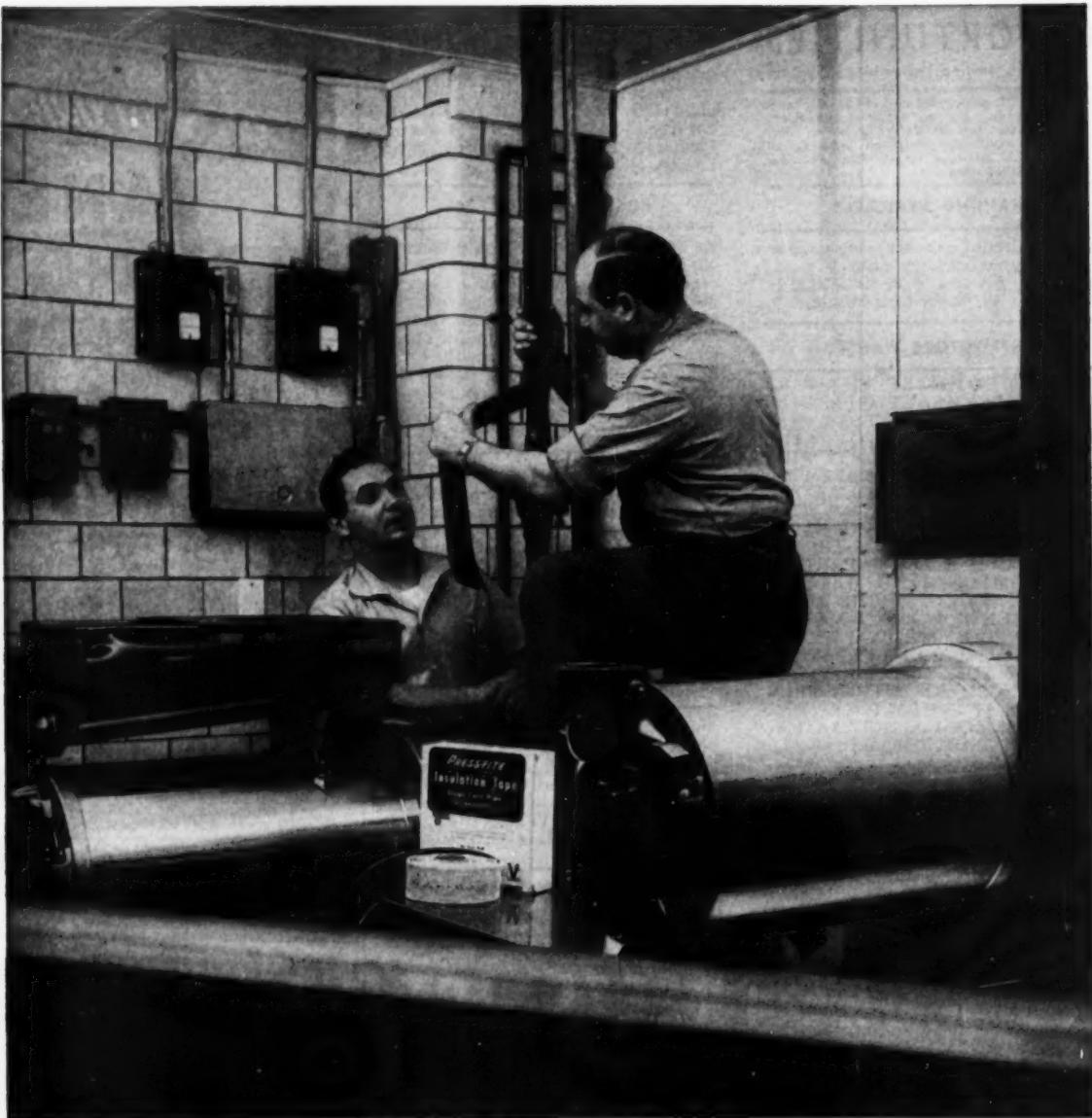
Exclusive
ICE-X
Distributor

The HARRY ALTER CO.

1728 S. Michigan Ave. Chicago 16, Illinois

Circle No. 50 on Reader Service Card
and AIR CONDITIONING • JULY, 1953

Circle No. 51 on Reader Service Card



"You mean that stops the dripping?"

Nothing can be more annoying than constantly dripping suction lines, cold water pipes, valves and fittings. Nothing can solve that problem quicker than Pressite Insulation Tape. It stops the drip, once and for all.

Pressite Tape contains 40 percent virgin cork. It adheres to any dry surface and is so easy to apply. You can build the wrap-

pings up to any thickness you want, and the joints will be self-sealing. No cements or other wrappings are ever needed. Pressite Tape does *not* harden or become brittle. The convenient easy-to-use package contains a roll of tape 2" wide x $\frac{1}{8}$ " thick and 30 feet long.

Get Pressite Insulation Tape from your favorite wholesaler.

Circle No. 52 on Reader Service Card

Or write VIRGINIA SMELTING CO.,
Dept. 64, West Norfolk, Va.

VIRGINIA
VIRGINIA
Refrigerants

ESOTOO • KINETIC CHEMICAL'S "FREON" REFRIGERANTS
V-METH-L • CAN-O-GAS • PERMAGUM • PRESSITE TAPE
SOLVEX PRODUCTS • SUNISO REFRIGERATION OILS

THE COMMERCIAL REFRIGERATION and AIR CONDITIONING

APPLICATIONS MANUAL

by William M. Brewer

Readers are invited to submit their problems to this department. Each letter of inquiry will be answered personally by the author. All problems should be clearly and completely stated and addressed to: COMMERCIAL REFRIGERATION AND AIR CONDITIONING, Manual Dept., 1240 Ontario St., Cleveland 13, Ohio.

Window Air Conditioner With Strip Heaters Solves Factory Storage Room Problems

THE tremendous increase in popularity of window air conditioners in the last two years is largely due to the trouble-free service provided by the sealed refrigeration systems that the manufacturers have developed for use in these units.

This feature makes the application of window air conditioners very practical for small process air conditioning jobs where continuous control of storage conditions for various materials is very important.

Many materials in the electronics industry and its allied fields, for instance, require close control of both temperature and humidity in all phases of their processing.

Recently we were called in on a problem of this type where special material was stored in a small inside room of a factory and required constant temperature and humidity conditions of 75°F dry bulb and 45% relative humidity the year around. The surrounding shop area was held roughly at 65 to 70°F during the winter and would rise as high as 100°F in the summer.

Considering these conditions, it was determined that heating, cooling, humidification, and dehumidification each separately controlled—would be required, although the capacity requirements for each of these functions would be relatively small. It was emphasized by the customer that the system installed must be reliable for constant operation night and day and over long weekends.

Our engineering calculations determined that a $\frac{3}{4}$ -ton cooling system

would be required and we immediately decided on the use of a window air conditioner rather than the conventional fan-coil and remote compressor system with field installed refrigerant piping. Electric strip heaters were chosen for primary heat and reheat for dehumidification. A small package water-atomizing humidifier was selected for humidity control.

A constant source of compressed air was available, so a simple system of pneumatic controls was installed. This system consisted of one room thermostat, one room humidistat, and four pneumatic-electric switches operating

in the sequence as shown in the accompanying wiring diagram (Fig. 1).

As indicated in the accompanying diagram of the window cooler installation (Fig. 2), the strip heaters were located in a specially fabricated housing built up on the portion of the window unit extending into the conditioned area.

This installation not only proved to be reliable and trouble-free, but also resulted in a lower first cost than would have been possible had a conventional remote installation been designed for this application.

DETROIT HARVESTER CO. TRANSFERS FACILITIES

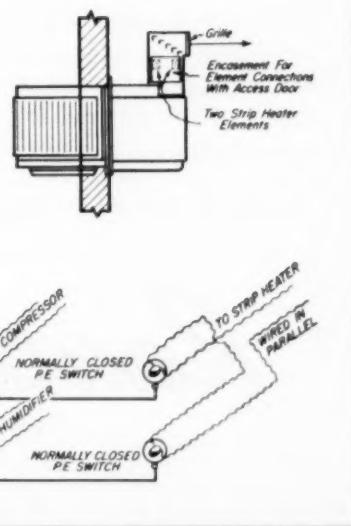
Detroit Harvester Co. has moved the headquarters and sales offices of the Pioneer Pump Div. to 2750 Guardian Building, Detroit, and manufacturing operations have been transferred to a new plant in Paris, Ky. Production of industrial pumps formerly manufactured in Detroit is already underway in the Kentucky plant.

HAJOCO OPENS NEW SAVANNAH DEPT.

Hajoca Corp. has opened an air conditioning and refrigeration department in the Savannah, Ga. branch located at 725 Wheaton St. W. W. Wilson will be territory salesman and Milton Pappas will be counter salesman.

FIG. 1 (below)—Wiring diagram of the pneumatic control system for the window air conditioner installation.

FIG. 2 (right)—Side view of the window air conditioner installation, showing location of the strip heaters.





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WORLD'S LARGEST MANUFACTURERS OF REFRIGERATION CONTROLS

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THE SERVICE MAN'S DEPARTMENT

HERE'S HOW!

Effective Way To Siphon Liquids

Here's a simple way of siphoning liquids without drawing them into your mouth.

Use the customary rubber hose with a section of glass tube inserted into one end to serve as a mouth-piece. This enables you to see the liquid as it rises in the glass tube, and you can stop it where you wish.

Then pinch the rubber tube to prevent back flow, place your finger over the end of the glass tube to hold the vacuum, and lower the free end of the tube to a point below the level of the liquid being siphoned.

Tips On Drying Refrigeration Systems

Moisture, as any serviceman knows, is the No. 1 enemy of a refrigeration system.

Just a few drops can freeze up the expansion valve and put the system out of operation. Sometimes a system will operate satisfactorily for weeks or months, and then have moisture trouble because moisture in the system finally worked out of other parts and into the expansion valve.

Consequently, thorough drying of a refrigeration system is of utmost importance, and the service man can't take too many precautions to be sure that all moisture is eliminated.

An important factor in keeping a refrigeration system free of moisture is the manner in which equipment is handled.

If the parts are not capped or sealed tightly they are likely to contain moisture when they are in-



HAVE you ever been caught short on a service call where you found the trouble to be a "dead" motor capacitor when you had no capacitor in your truck? If so, you'll appreciate this suggestion for an emergency measure which you can use temporarily to correct this situation.

Simply remove the old capacitor and connect a regular lamp socket in its place. Then screw in a lamp bulb varying in size from 75 to 200 watts for 1/6 to 1/2-hp units. Start and stop the motor and keep trying different sized bulbs until you find the one that gives you the "snappiest" start.

This system works with capacitor start hermetic units as well.

Of course this system is recommended for emergency use only, but during the war we operated 1/2-hp capacitor motor by this method for 6 months, because we simply couldn't get a replacement capacitor. And we have never damaged a motor or unit by using this temporary procedure.

W. J. Hobbie,
Petaluma, Calif.

stalled. Refrigeration parts often are carried in a cold service car or kept in a cool place, such as a basement. When a cold part is taken into a warm room for installation, and is not sealed, moisture will condense on and in that part because its temperature is lower than the dew point of the air.

Therefore, it is important that all parts be kept closed until they have warmed up to the temperature of the room in which they are to be installed.

No part, whether it is new or one which has been dried and sealed, should ever be opened until it has had time to become thoroughly warm.

Here Are Some Tips On Cleaning Solenoids

Solenoids can be cleaned satisfactorily, providing proper care is taken in the process.

After the coil assembly is removed, use a lint-free soft cloth and gum-free solvent (such as carbon tetrachloride) to wipe the seat, plunger and disk. Avoid scratching or defacing any of these precision made parts.

Before re-assembly, wipe out plunger tube and let it dry. Don't use oil in the valve.

The internal parts of the valve can be easily damaged. Metal tools should not be used in the cleaning process. Any distortion of the plunger, centering fingers, or push-off springs will cause the valve to hum or stick.

It is not necessary to remove or replace the entire valve when coil is inoperative.

Question Corner

Question: What is the action of a methyl thermal valve on a Freon job?

Answer: Upon installation the methyl valve would be found to be starving the coil and operating at a high super heat and it is questionable whether it could be adjusted to properly frost the coil. In an emergency, methyl valves have been used on Freon jobs and in other instances Freon valves on methyl jobs. In the latter case the valve will flood the coil and frost the suction line. For satisfactory performance, valves recommended by the manufacturer for the different applications should be used.

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The power-packed round coil of improved evaporator design is ideally suited for use in soda fountains, direct draw bars, reach-in refrigerators and similar cooling applications. It has all-aluminum casing and brackets; aluminum fin surface on copper tubing; oilless fan motor. Available in three sizes, with or without drain pan. Write for detailed information.

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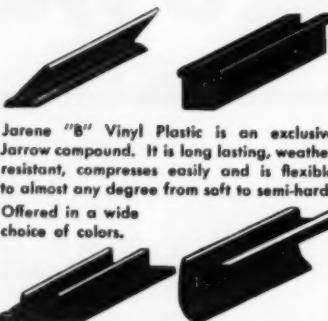
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ABOUT PEOPLE . . .

Continued from page 37

F. G. Hill has been named Kansas City regional manager for the Chrysler Airtemp Sales Corp., J. F. Knoff, Airtemp vice president and general sales manager, has announced. Hill, a district manager in the Kansas City sales office for the past three years, replaces T. U. Cowger, who recently resigned. Prior to joining Airtemp, he was with the western regional sales group of the Advance Furnace Co.



Kansas City sales office for the past three years, replaces T. U. Cowger, who recently resigned. Prior to joining Airtemp, he was with the western regional sales group of the Advance Furnace Co.

John H. Seippel has been named field sales representative for RCA room air conditioners in the Southern region, with headquarters in Atlanta. Seippel served as a regional sales manager for Fedders-Quiggan Corp. since 1948. During the four years prior to that, he was with the Raytheon Mfg. Co. in a sales-engineering capacity.

Lloyd Backstrom has been appointed refrigeration products sales representative for McQuay in the Pacific Northwest territory. For the past seven years Backstrom was sales manager for Peerless Pacific Co. Announcement of



Backstrom's appointment was made by A. B. Bayer, manager of McQuay's refrigeration department.

Three appointments have been announced by J. W. Mortell Co. T. P. Fitzpatrick has been named vice president and general manager, E. F. Gerrity has been appointed sales manager and R. A. Dixon has been named assistant treasurer.

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PREST-O-LITE cold-drawn cylinders for refrigerant gases are available in 5-lb. (rounded bottom or with foot ring), 10-lb., 25-lb., and 35-lb. sizes. You can have 50-lb., 100-lb., 150-lb. or special sizes and styles made to your specifications. Save more money in the long run by using the finest cylinders. Just mail the coupon today for complete information.

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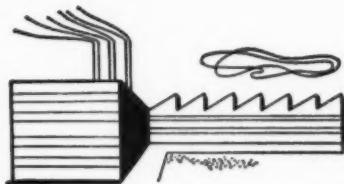
COOLING

Circulation and
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HEATING



COMMERCIAL



INDUSTRIAL



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RESIDENTIAL

AIR CONDITIONING

Section

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THIS SPECIAL SECTION will be devoted to all phases of Air Conditioning — Residential, Commercial and Industrial, including both self-contained packaged units and central-station type equipment for seasonal or year-round application.

It will include information on the merchandising, selling, installation and maintenance of Air Conditioning equipment, reports on the New Products which are being introduced in this field, and announcements of Literature available from manufacturers.

We believe our readers will appreciate this new service, and the convenience of being able to locate quickly all the information on Air Conditioning in each issue in this special section of **COMMERCIAL REFRIGERATION AND AIR CONDITIONING**.

Air Conditioning CAN Pay for Itself!

MOST businessmen are satisfied that air conditioning is a good thing as far as comfort is concerned. But with their profits squeezed in a multitude of ways they are less inclined to invest in niceties. They expect their investment to pay for itself. Can it?

Studies have shown that efficiency of workers drops off sharply as temperatures go up. Best temperature is in the mid-70's. At 85F, a person works at only 80% efficiency; at 95F efficiency is cut in half.

For the "hardheaded" businessman who wants something measurable in dollars and cents, there is a simple formula for calculating how fast his clerical savings will pay off his investment in air conditioning equipment.

In an article in its April issue titled "So You're Going to Air Condition This Summer!" *Methods* magazine presents a chart showing a typical investment analysis for an office with 15 employees. In the example it cites, air conditioning will pay for itself in less than two years.

The magazine also presents a chart showing the average number of working days requiring air conditioning in various cities, so that businessmen in various localities can figure out for themselves whether or not air conditioning would be a good business investment for them.

We present these charts here, so that air conditioning dealers and salesmen can use them in helping their businessmen prospects prove for themselves that air conditioning more than pays its way in promoting increased employee efficiency, less absenteeism in hot weather, and lower employee turnover.

In using the chart to estimate savings resulting from air conditioning, it is important to keep in mind these three variables: (1) the number of days in which air conditioning is required in your city; (2) the number of employees and their average hourly wage; (3) the investment cost of the air conditioning equipment itself. Once these variables have been established, it is a simple matter to arrive at the actual dollars-and-cents savings that an air conditioning system will make possible.

For your file of
SALES
AMMUNITION

FIGURE THE SAVINGS

Average hourly wage rate	\$ 1.25
If in hot weather each employee loses one hour per day in efficiency ($7\frac{1}{2}$ minutes per hour—an extra trip for a cold drink—an extra chat about how hot it is!), the saving per employee per day with air conditioning is one hour's pay	1.25
Number of employees	X 15
Daily savings with air conditioning	18.75
No. of working days requiring air conditioning	X 75
Extra gross savings with air conditioning	1406.25
Operating cost (estimated)	
Electricity and water	\$250.00
Maintenance	+ 50.00
Total	300.00
Extra net savings with air conditioning	1106.25
Your investment (\$1800.00)	 = 1.6 years
Extra net savings (\$1106.25)	

CITY WEATHER CHART

Average number of working days requiring air conditioning in representative cities throughout the country:

City	No. of Days	City	No. of Days
Atlanta	109	Louisville	95
Baltimore	98	Memphis	98
Boston	70	Miami	120
Chicago	78	Minneapolis	65
Cincinnati	94	New Orleans	113
Cleveland	77	New York	89
Dallas	110	Norfolk	100
Des Moines	85	Oklahoma City	110
Detroit	75	Philadelphia	93
Houston	113	Pittsburgh	78
Kansas City	95	St. Louis	96
Los Angeles	73	Washington	101

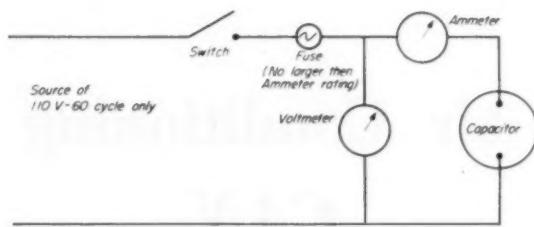


FIGURE 1—Connections for testing capacitors for such factors as capacity, opens, and short circuits.

SERVICE SLANTS

on room air conditioners

by Edward Dowis

THE sale of a new air conditioner usually carries with it, a warranty on the sealed mechanism. It remains the responsibility of the service engineer or contractor however, to determine if and when the unit should be removed, or to make the repairs or adjustments which may make replacement unnecessary.

Factory repairs may require several weeks to complete, and this delay may be very disconcerting to the user if it happens when he needs the conditioner most. Consequently, competent on-the-spot service is of extreme importance to the user.

The manufacturer is even more concerned about such service, because he has spent a fortune developing and advertising a product, the value of which is largely determined by the skill and integrity of the installation or service contractor.

Service to room air conditioners falls into three general classes:

1. Service to conditioners which develop trouble while in service.
2. Inspection at start up or shut down time, which many users wisely order and which may include cleaning and storage.
3. Regular inspection at specified intervals which may or may not include a labor or parts warranty or both.

Most of the troubles which develop in room air conditioners can be corrected on the job. Servicemen should be trained and equipped to render one-stop service on the highest possible percentage of calls.

Following are some of the more common complaints listed on service orders: conditioner does not operate; operates but provides no cooling; not enough cooling; noisy operation; odors; blows fuses or overload protection. Recommended methods of checking for the cause of these complaints are presented in the following paragraphs.

Conditioner does not operate: Check the power supply to see that voltage and kind of current corresponds with nameplate data and that the receptacle is alive.

The switch is usually a two position one, the first position operating the circulating fan and the second the compressor. A test lamp across switch terminals which are supposed to be connected on the "fan" or "cooling" position will glow when the switch is at fault.

Also test across the cord terminals in the machine to be sure that plug and cord connections are good. Next test across the thermostat and overload. A glowing lamp when the thermostat is on will indicate trouble in the thermostat or overload.

Another test is to connect a test lamp or voltmeter between the common and running and common and starting terminals of the compressor while the switch is on cooling and the thermostat is on. Line voltage

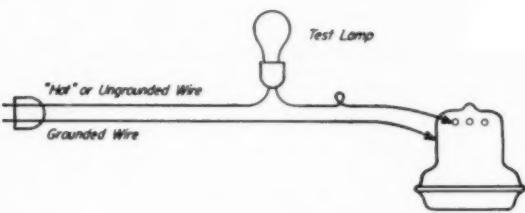


FIGURE 2— Method of testing hermetic compressor for grounds, using a test lamp in series with a cord and plug.

at the running terminal and near line voltage at the starting terminal should be indicated. Failure of this indication shows trouble outside the compressor.

If voltage is indicated at compressor terminals but the unit will not start, check the starting capacitor and running capacitor if there is one. The best way is to insert good capacitors of the same capacity in the circuit.

Capacitors can be checked for capacity, opens, and short circuits with an A. C. voltmeter and ammeter connected as shown in Fig. 1. An open capacitor will be indicated by no ampere reading. A shorted capacitor will blow the fuse. The capacity in microfarads will be:

$$\text{amperes} \quad \times 2650 \\ \text{volts}$$

This capacity should not be less than the rating indicated on the case, though it may exceed it up to about 40%.

To check the compressor alone, disconnect the wires from terminals and connect line voltage from a separate cord across common to running terminals. Then momentarily connect starting and running terminals through a capacitor the same size as the starting capacitor. This should start the compressor motor.

At this point, check between the frame and either of the terminals with a continuity tester which may be a lamp in series with a cord and plug. Do not use a neon glow lamp and be sure the frame of the compressor is not grounded or see that the ungrounded (hot) side of the line is connected to the lamp and the other side of the lamp to the terminal, as indicated in Fig. 2. A

compressor with a grounded motor winding will have to be replaced.

Operates but provides no cooling: First, be sure that the compressor is actually running. Since the trend is to quiet operation, the sound of the condenser and evaporator fans may be mistaken for the compressor. Shortage of refrigerant, defective expansion valve, improper adjustment, restriction, or faulty compressor are the usual causes.

The possible tests are determined by the valves or ports to which gauges can be connected. When no ports are available, heat the expansion valve or capillary tube, which may loosen a restriction.

Gauge ports or fittings to which hermetic adapters may be attached afford the best way to check operation or refrigerant charge. Low suc-

tion pressure indicates shortage of refrigerant, poor expansion valve setting, or restriction. The best way to check the charge is to withdraw the refrigerant, evacuate to a very low vacuum, add the correct amount, and again check operation.

Check very carefully for leaks. Any oil lost in the operation should be replaced and care exercised to prevent entrance of air.

No internal service should be performed on a conditioner under warranty by the manufacturer without specific instructions and authority. Most warranties are void if any unauthorized service is performed, including charging or discharging of refrigerant.

Not enough cooling: This is probably the most frequent complaint, so the serviceman should be able to determine whether or not it

TABLE 1

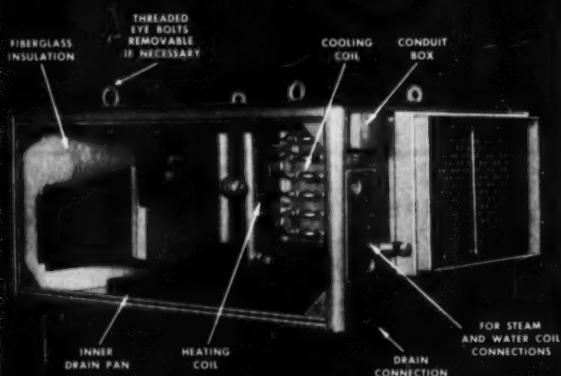
Approximate total B.T.U. per cubic foot of air for various wet bulb temperatures

W. B. Temp.	B.T.U. Cu. Ft.	W. B. Temp.	B.T.U. Cu. Ft.	W. B. Temp.	B.T.U. Cu. Ft.
55	1.73	65	2.22	75	2.84
56	1.78	66	2.28	76	2.91
57	1.82	67	2.33	77	2.98
58	1.86	68	2.39	78	3.04
59	1.92	69	2.45	79	3.12
60	1.96	70	2.52	80	3.20
61	2.02	71	2.57	81	3.28
62	2.06	72	2.63	82	3.35
63	2.12	73	2.71	83	3.44
64	2.16	74	2.76	84	3.51

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Contractor, Valley Refrigeration
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These Bush conditioners make a market "Super"



Shop in comfort, work in comfort. Economy Market of New Brighton, Pa., offers conditioned air to customers and employees alike. Six row deep Bush Comfort Conditioners handle the comfort cooling requirements of an average of 300 people per hour. For the heating season two row hot water coils in each unit provide a convenient and economical heating system.

For offices, stores, shops, beauty parlors, restaurants, transportation terminals, taverns, the Bush Comfort Conditioner is the ideal solution to the problem of high quality, low cost air conditioning.

Bulletin 530, free upon request, contains complete data.

Bush Manufacturing Company

WEST HARTFORD 10, CONNECTICUT



Circle No. 59 on Reader Service Card

is justifiable, and so demonstrate to the user.

The Btu per hour performance of a conditioner can be readily determined by taking dry bulb and wet bulb readings of the circulated air as it enters and leaves the conditioner. It will be necessary, also, to know the cubic feet per minute of air passing through. It is common practice to circulate about 400 cfm of air per ton of capacity. If the filters are clean and the fans in good condition, this quantity can be assumed for an approximate performance test.

Check Performance

The total work of the conditioner can be determined by taking the inlet and outlet wet bulb temperatures and finding the difference in total heat per cubic foot of air entering and leaving. Multiplying this by the cubic feet per hour will give the total Btu/hr absorbed by the conditioner.

As an example, suppose a $\frac{1}{2}$ ton conditioner has an inlet wet bulb temperature of 68 and outlet of 58. Referring to Table 1, we see that air entering the conditioner contains 2.39 Btu per cubic foot, while that leaving contains 1.86. Thus the conditioner has removed 2.39 less 1.86 or .53 Btu per cubic foot. If we assume 200 cfm for a $\frac{1}{2}$ -ton conditioner, the total heat removed is $200 \times .53$, or 106 Btu per minute, or 6360 Btu per hour. This is slightly more than the rating of a $\frac{1}{2}$ -ton conditioner.

Compute Sensible Cooling

The sensible cooling can be more simply computed. It is only necessary to take the dry bulb inlet and outlet temperatures and determine the difference. The Btu/hr will be: cfm x temperature difference x 1.08

If the conditioner referred to above has inlet and outlet dry bulb temperatures of 80 and 63 respectively, the sensible cooling effect will be $200 \times 17 \times 1.08$, or 3672 Btu/hr. The moisture removal will represent the difference between total and sensible, that is 6360 less 3672, or 2688. The sensible percentage will be 3672 divided by 6360, or 57%.

The above figures are based on air at usual air conditioning tem-

peratures and are sufficiently accurate for practical estimation. When taking temperature measurements, see that no outside air is being mixed with the conditioned air. More accurate estimation can be made by referring to the manufacturer's specifications for air flow or by using an air velocity instrument.

Apparent insufficiency of cooling may be due to more than the normal moisture removal (which may be caused by an abnormally high moisture load), low coil temperature, dirty filters, or defective baffling, among other things.

In order to get maximum total capacity as well as the highest sensible percentage, try to get maxi-



mum air flow through the coil and see that no air bypasses it. Replace dirty filters and clean the coil surface if it appears dirty. See that fans operate at maximum capacity.

The refrigerating equipment for room air conditioners is about the same as for other applications of the same size. A coil temperature of about 40 F is about right and should not be expected to fall much below that.

Many servicemen whose experience has been mostly with lower temperature work think the compressor is at fault because the coil temperature will not fall below about 40 F. It can be made to go lower by disconnecting the evaporator fan temporarily.

A rhythmic rise and fall of suction pressure is normal in some air conditioners equipped with thermostatic expansion valves. This is commonly called the "swing" of the

valve and occurs as the valve opens and closes. Since this is more pronounced in air conditioners than in low temperature applications, it may be wrongly assumed that the valve is at fault or out of adjustment.

Adjust Expansion Valve

The expansion valve should be adjusted to minimum superheat which will prevent liquid entering the suction line. This is in order to keep the maximum coil surface cold and will result in maximum capacity, efficiency and percentage of sensible cooling. Too much superheat has the same effect as bypassing some of the air around the coil — low coil temperature, decreased capacity, and low sensible ratio.

When checking for cooling effect, the damper settings should be noted. Most room conditioners are equipped for ventilation by supplying outside air. When the outside air is at high temperature this adds appreciably to the cooling load. The user should be instructed to avoid setting dampers to introduce outside air when maximum cooling effect is required.

Noisy operation: Noise elimination has been among the most notable improvements in air conditioner manufacture in recent years. This has included the development of quiet compressor-motor assemblies and fans, noise-free air distribution, and sound absorbing materials in cabinets and mountings.

Eliminate Vibration

Noise most often develops from vibration of parts, often after careless assembly following inspection or service. The outside air grilles and fans should be inspected for dirt, leaves, or papers. Cabinet screws, often of the sheet metal type, may loosen enough to cause noise, though apparently tight. These should be tightened as a routine measure on each service call.

Some fan shafts are long enough to be bent easily when servicing and the fan blades should be at the proper position on the shaft. Fans are often balanced as an assembly and when blades must be removed, they should be marked and replaced

Continued on page 98

THE
HEATING OF AIR CONDITIONING
SIDE

By Wm. Henry Knowlton

Residential Cooling with Chilled Water

EARLY in World War II the refrigeration industry encountered a brisk demand for liquid chilling systems required to reduce the temperature of oils and coolants used on machine tools; reduce the temperature at the tips or rolls on certain types of electric welders; cool photographic tanks in thousands of army photographic buildings, and supply drinking water systems in countless defense plants, large and small.

At first these systems were built up from established components,

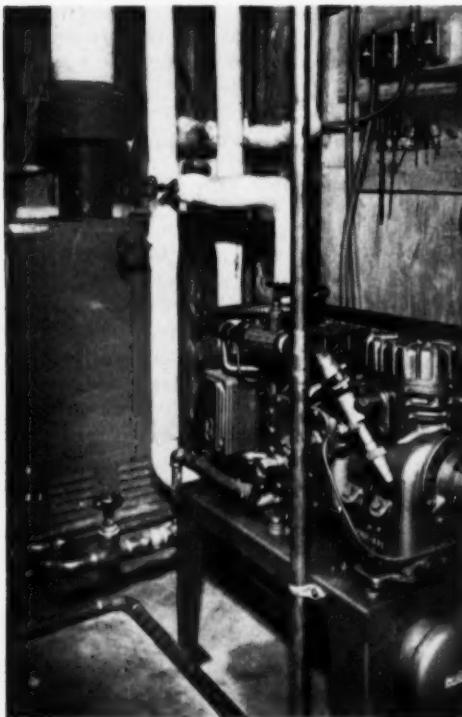
consisting of a condensing unit, water cooled condenser, receiver, liquid chiller, and controls. Systems of this type took up considerable space, and a great deal of installation work on the job.

With a ready demand for their product at hand, several manufacturers designed "packaged" liquid cooling systems, in which the various components were assembled in the factory. As a result, these units were far more compact than anything assembled in the field, somewhat lower in equipment cost,

and installation cost in the field was sharply reduced.

Today these packaged liquid cooling units are available for application by the heating and air conditioning contractor. While they are somewhat more costly than direct expansion "packaged" units of various types, they have the advantage of rapid, low-cost installation cost in the field, and will fit in certain areas where space may be very limited.

Perhaps more important, however, they provide the answer to the



FOR HOT WATER SYSTEMS (left) the liquid chiller supplies chilled water directly to the same convectors used for hot water heating in winter. All equipment for this system was installed in an existing closet space.

FOR WARM AIR SYSTEMS (below) a chilled water coil is located in the return air plenum of the warm air furnace (one filter panel has been removed to make it visible). This coil is connected to the liquid chiller by flexible hose.



problem of cooling the home that is heated by hot water convectors in winter. In this type of installation it is only necessary to pipe chilled water to the various convectors in the home.

An excellent example of such an installation is the residence of Herman Blum, consulting engineer, located in the Greenway Park section of Dallas, Tex.

Cost Is Moderate

In this ranch-type residence the gas boiler and the 5-hp packaged liquid chiller were both installed in a hall closet between the bathroom and living room. Both the boiler and the liquid chiller serve a series of convectors located in the various rooms. The unit cools 15 gpm of water from 53 to 45 F, and the desired temperature is maintained in the various rooms by thermostatic control of the individual convectors in both winter and summer.

Heating and air conditioning contractors will find that customers having a definite preference for hot water heating with convectors will be quick to accept a system of this type, which is flexible, economical to operate, and easy to install. The capacity of the cooling system may be used in its entirety, or in part, according to the requirements of the owner.

Installation Is Simple

Aside from the standpoint of original equipment cost, the use of a packaged liquid chiller also has many advantages when installed in connection with a forced warm air or winter air conditioning system.

With a furnace blower of adequate capacity, and all the duct system in place, a cooling coil may be installed in the return air plenum of the system, or on the supply side, in a matter of a few hours. Chilled water is piped to the coil by means of flexible rubber tubing.

While installation of the chilled water coil on the return side of the system is most common, many engineers prefer to install the cooling coil in the supply side, and this is often possible in jobs where a "graduated" type of duct system is used.

In an old residence having an existing forced air system, a cooling



WINDOW COOLERS in each room of one wing of this Maryland motel proved so popular that the owner now is installing units in all other suites.

Motels Need Conditioning

An experiment in air conditioning by a progressive Maryland motel owner, who installed room coolers in the wall under casement windows in one wing of his establishment, has proved so successful that he is planning to equip the entire motel with air conditioning for the coming season.

The Motel Chase Manor, on U. S. Route 40 in Edgewood, 21 miles north of Baltimore, is a rambling modern one-story building, with 33 suites accommodating 102 guests. It was completed in June, 1952, featuring usAIRco ½-ton window type room unit air conditioners in 14 of its suites, reports R. A. Ballentine, of the Shepherd Electric Co., Inc., United States Air Conditioning Corp. distributor in Baltimore.

To accommodate window type coolers with casement window construction, simulated window frames were built into the exterior wall beneath the sill of each casement window. These dummy frames were sized so that the ½-ton units would fit snugly without the use of spacers.

According to John Kramer, owner of the Chase Manor, demand for the air conditioned accommodations during the past season was so great that his 14 cooled suites were always filled.

"My experience with late comers who were often quite disgruntled because no more air conditioned rooms were available has convinced me that this summer I must be 100% air conditioned," he said.

unit and coil of this type can be installed in a minimum of time on the job, and it is often possible that the extra cost of cooling equipment will be absorbed by the reduction in man hours on the job.

Control of a system of this type is simple. The fan is permitted to run continuously, and the thermostat is connected to a solenoid which permits chilled water to flow to the coil in the plenum chamber. The refrigeration system, in turn,

operates on back pressure, to supply the demand for additional chilled water.

Systems of this type, and those offering conventional packaged direct expansion cooling systems, are usually water cooled. In these instances, the condensing water is often run down the drain.

Heating and air conditioning contractors who have studied the problem, however, recommend that
Continued on page 98

LOOK TO *Jacuzzi* ... FOR ECONOMICAL ALL PURPOSE



CENTRIFUGAL PUMPS

PRECISION ENGINEERED for air conditioning and hot water circulating

Get
the
facts!

Write for
detailed
bulletin
"JGP-2."

You can count on Jacuzzi's compact, dependable utility pumps for jobs like circulating water in air conditioning systems, food processing plants, cooling towers, swimming pools...ideal, too, for sprinkling lawns and hot water circulating.

Can be mounted at any angle with six different discharge positions. Horsepower ratings from $\frac{1}{4}$ through 5 H.P. Electric motor, belt or gas engine drive.

Low cost. Simple in design. Highly efficient. Each unit built with the same engineering know-how and ruggedness that has made Jacuzzi the world leader in centrifugal-jet pumps. Don't settle for less.



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Circle No. 60 on Reader Service Card

USEFUL LITERATURE On Air Conditioning

To obtain the information described below, simply circle on the postcard in this issue the key numbers of the items you wish to receive. We will forward your requests to the companies concerned.

GLAZING AIR CONDITIONED HOMES is a subject perhaps too little considered by those engaged in the air conditioning field, but with the new bulletin M-23 offered by Libbey-Owens-Ford Glass Co. one can readily find all the information needed. In addition to general data on the planning of a year-round air conditioned home, the bulletin also contains accurate data on transmission of solar energy through different types of glazing for windows. Winter and summer effectiveness of "Thermopane" insulating glass is also discussed.

Circle No. 101 on Reader Service Card

GAS FIRED suspended type unit heaters with cast iron heat exchangers are featured in a 6-page folder presented by Dravo Corp. Describing the entire line of space heaters, the folder contains photographs, sizes and capacities, and measurements for installation of each type unit. Standard equipment is listed and a photograph of a unit is included with all parts identified.

Circle No. 102 on Reader Service Card

SILICA-GEL AIR DRYERS manufactured by Bryant Heater Div., Affiliated Gas Equipment, Inc., are presented in a 4-page bulletin available from the company. Included in the bulletin are descriptions of how dryers are applied to differing humidity problems, such as product drying, comfort air conditioning, storage, etc. How they work and what they do is diagrammed. Ratings and dimensions are also listed.

Circle No. 103 on Reader Service Card

FULLY AUTOMATIC year-round air conditioning units for residential application are described in literature available from Typhoon Air Conditioning Co., Inc. Special features, complete specifications and dimensions are included for the two gas models and the one oil model described. Also included is the same information on a gas/oil unit and on an air cooled condenser.

Circle No. 104 on Reader Service Card

ALL THE INFORMATION you want on standard and heavy-duty centrifugal fan industrial heaters is at your fingertips in the 32-page catalog offered by Westinghouse Electric Corp. Catalog 1510 contains information on where to use which type heater, placement, automatic temperature controls and methods to determine the heat load any particular heater must carry. Typical specifications are given and typical examples are worked out. Performance data is graphed and complete dimensions are included.

Circle No. 105 on Reader Service Card

**Want more Useful Literature?
Turn to page 84.**



MADE TO BE QUIET!

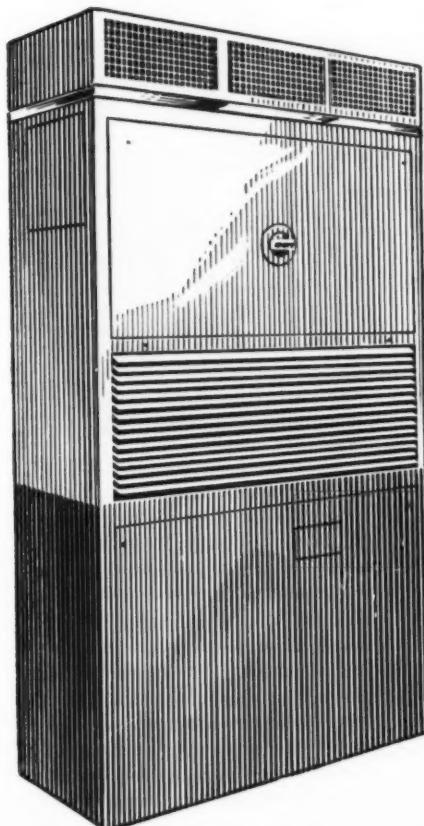
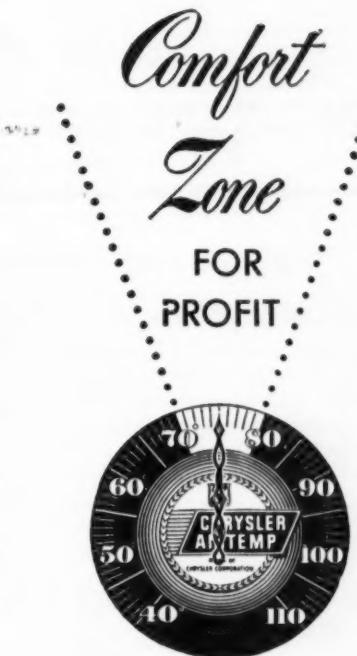
Chrysler Airtemp "Packaged" Air Conditioning is designed and engineered to give QUIET operation. This allows the unit to be installed nearer to room occupants without disturbing them. It may mean less ductwork . . . greater installation economy.

But that's not all! Quietness and freedom from vibration contribute to long life and years of trouble-free service.

Here are just three of the many reasons for the amazingly quiet performance of Chrysler Airtemp Packaged Air Conditioning:

- Vibration is reduced to a minimum in the compact radial compressor, because the compressor design permits perfect balance regardless of the number of cylinders.
- Transfer of any noise or vibration within the air conditioner is prevented by flexible connections in both the suction and discharge lines.
- For super-quiet performance the compressor is supported from rubber mountings. There is no metal to metal contact.

Get all the facts today. See why it will pay you to sell the "Packaged" Air Conditioning most people buy—Chrysler Airtemp!



"Packaged" Air Conditioners
Six water-cooled models
2 to 15 H.P. and 2 and
3 H.P. air-cooled models
meet most cooling needs.

*Chrysler
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HEATING • AIR CONDITIONING
for HOMES, BUSINESS, INDUSTRY

Airtemp Division, Chrysler Corporation, Dayton 1, Ohio

Airtemp Division, Chrysler Corporation
P.O. Box 1037, Dayton 1, Ohio

CR&AC-7-53

Please send full details on the Chrysler Airtemp Comfort Zone
"Packaged" Air Conditioning proposition.

Name _____

Address _____ Phone _____

City _____ Zone _____ State _____



Circle No. 61 on Reader Service Card

and AIR CONDITIONING • JULY, 1953

WHAT'S NEW...

in Air Conditioning Equipment

For further information on any of these products, simply circle on the postcard provided in this issue the key numbers of the items in which you are interested. Your requests will be forwarded directly to the companies concerned.

(For more NEW PRODUCTS turn to page 88)

Air-Cooled Conditioner

Product: Air-cooled packaged residential air conditioner designed for medium and low priced homes.

Manufacturer: Airtemp Div., Chrysler Corp., Dayton, Ohio.

Features: Small enough to fit in utility rooms, attics, sub-floor crawl space yet big enough to cool average homes of 6 to 8 rooms. No



water usage and no water piping is required. Available in 2 and 3-hp sizes. Outside air is drawn through unit to cool refrigerant. Home air is drawn through cooling coil, dehumidified and distributed through furnace ducts. Units are 40" high, 40" wide, 22" deep. Utilizes 3,500 rpm, 4-cylinder sealed radial compressor. Compressor is 18" high, 9½" in dia., has 1" bore, 1-5/16" stroke. Steel-backed bronze main bearings and connecting rod inserts, high-speed starting torque loader which produces full operating speed in 1/20th of a second are also incorporated. Remote installation of the condensing unit is possible with this conditioner. Cooling coil can be located in main furnace discharge duct, condensing unit outside home with copper tubing con-

nctions between the two sections. All-weatherproof condensing units are 22" high, 36" deep, 27" wide.

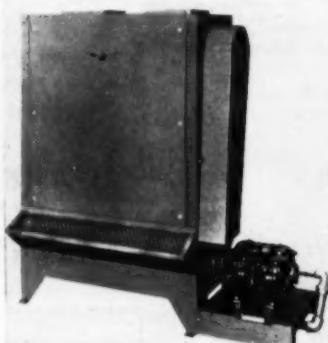
Circle No. 111 on Reader Service Card

Cooling Tower Line

Product: Line of CT model "Hydro-Miser" cooling towers.

Manufacturer: Larkin Coils, Inc., Atlanta, Ga.

Features: Available in 3, 5, 7½ and 10 nominal ton capacities. Units use a wetted surface composed of screen grid work which holds maximum amount of water in suspension, exposes greater area of water surface to air. Double-inlet fans are forward-curved centrifugal wheel type which are dynamically



balanced after hot-dip galvanizing. Fans mounted on heavy-duty shaft which is supported on self-aligning, pillow-block type bearings with graphited bronze bushings. Galvanized iron pipe spray header has centrifugal, non-clog bronze spray nozzles. Nozzles equipped with removable orifices for cleaning and

maintenance ease. Standard NEMA drip-proof motors. Centrifugal type pumps have stainless steel shaft, bronze impeller, mechanical seal and 2 ball bearings. Single motor of sufficient power to operate both pump and fans is provided. Remote-type towers are available.

Circle No. 112 on Reader Service Card

Unit Heater Line

Product: Models D, DB, and DD suspended gas fired unit heaters.



Manufacturer: Dravo Corp., Machinery Div., Pittsburgh, Pa.

Features: Suitable for natural, manufactured, mixed, liquid petroleum, sewage or coke-oven gas, input capacities range from 85,000 to 215,000 Btu per hour. Model D heater equipped with a standard fan, Model DB with squirrel-cage blower for short duct runs. Model DD (without blower) is designed as heating unit to be built directly into air conditioning duct systems. Cast-iron bunsen type burner assembly can be removed quickly for easy

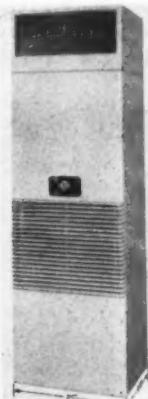
servicing and cleaning. Drawer frame slides out with mounted burners and all controls making them easily accessible. All heaters carry American Gas Association approval, are listed by Underwriters Laboratories and are flame tested before shipment.

Circle No. 113 on Reader Service Card

Commercial Air Conditioner

Product: "Mayfair" Models CCA-2 and CCA-3 packaged air conditioners for commercial establishments.

Manufacturer: American Radiator & Standard Sanitary Corp., Pittsburgh, Pa.



Features: Model CCA-2 and CCA-3 are 2 and 3-hp, have cooling capacities of 24,000 and 36,000 Btu, respectively. Multiple units can be used where cooling loads exceed ratings. Winter heating can be provided by adding a heating coil. Both models need only 22 x 25" floor space, are about 82" high. May be installed outside conditioned area by use of duct work to convey conditioned air. Hermetically sealed refrigeration circuit is internally spring mounted for quiet operation, less vibration. Consists of gas cooled compressor and counter-flow condenser with removable header plates for easy cleaning. High pressure cut-out protects against abnormal condensing pressures. Adjustable thermostat and three-way switch allows fan to be operated alone when cooling isn't needed. "Humid weather" control removes moisture without overcooling. Air direction and flow from centrifugal fan is controlled by 4-way adjustable

grille in plenum section on top of unit. Cleanable type air filter. Pre-assembled at factory, unit is operable as soon as necessary electrical, drain and water connections are made.

Circle No. 114 on Reader Service Card

Unit Air Conditioner

Product: Model 50 WAC "Vornado" 1/2-hp unit air conditioner for installation in small rooms.

Manufacturer: A. O. Sutton Corp., Wichita, Kan.

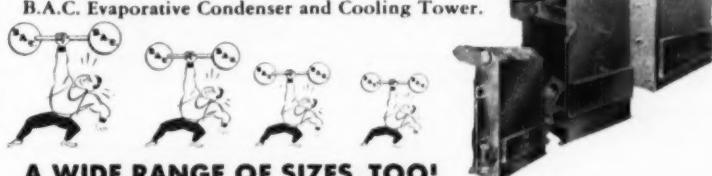
Features: Vortex control combines high velocity air movement with maximum cooling, gives 20% greater cooling effect. Air circulator can be rotated 360° and tilted up or down so that air can be directed to any part of the room. Unit is rated at 6000 Btu, will remove up to 21 qts. of moisture per day. Velocity discharge at 1500 fpm, will move air through circulator up to 30 ft. into room without drafts. Unit extends only 9 1/2" into room,

"RUGGED"



EVAPORATIVE CONDENSERS and COOLING TOWERS

Simplicity of design, heavy gauge metal, sturdy construction and careful checking and testing assures you of years and years of trouble-free service from every B.A.C. Evaporative Condenser and Cooling Tower.



A WIDE RANGE OF SIZES, TOO!

B.A.C. offers the world's widest range of Evaporative Condensers and Cooling Towers IN SINGLE FACTORY-ASSEMBLED UNITS . . . Evaporative Condensers in sizes up to 260 TR . . . Cooling Towers in sizes up to 225 TR. This exclusive B.A.C. feature simplifies your installation and greatly reduces your installation cost.

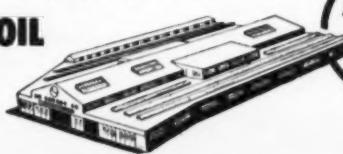


WRITE FOR FREE BOOK:

"Evaporative Condenser Installation & Operation Manual and Maintenance Manual"

BALTIMORE AIRCOIL COMPANY, INC.

2615 Mathews Street
Baltimore 18, Md.



Circle No. 62 on Reader Service Card

can be easily installed in any double hung sash window. Unit finished in soft grey-green color.

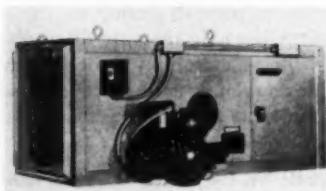
Circle No. 115 on Reader Service Card

Suspension Furnaces

Product: Three suspension furnaces augmenting the J-C suspension series.

Manufacturer: Jackson & Church Co., Saginaw, Mich.

Features: Output ranges in the three models from 80,000 to 112,000



Btu. Units can be used singly or in batteries to handle hard-to-heat space heating requirements. May be adapted to air conditioning by tying them in with refrigeration units. All units include the J-C heat ex-

changer. Panel liners provided to keep outside temperatures low. Flange mounted pressure atomizing burner. Cabinet finished in baked-on hammered enamel. All models are 23" high, slightly more than 26" wide, length varies from 55 to 61".

Circle No. 116 on Reader Service Card

Water Cooling Towers

Product: Two types of water cooling towers for residential and business service.

Manufacturer: Marley Co., Kansas City, Mo.

Features: Natural draft cooling towers designed for outdoor use only. Take advantage of natural air flow, must be located well away from buildings or walls that restrict



You don't have to wait until the moisture is picked up by a cartridge drier. Thawzone will travel through the system and pick up the moisture quickly.

Thawzone quickly reaches ALL the moisture . . . even if it is clinging to the pores of castings or tubing . . . or even if it is floating in the receiver.

Furthermore, Thawzone does a more complete job of eliminating moisture problems. Compare this patented liquid drier to any other product available:

YOUR PRESENT METHOD	THAWZONE
------------------------	----------

<input type="checkbox"/>	<input checked="" type="checkbox"/>

Can it act in all parts of the refrigerant within 2 minutes?

Can it destroy moisture instead of merely being a "sponge" or an antifreeze?

Is it an ordinary product or a patented invention?

Is it free of any effect whatsoever on pressures?

Is it free of any possibility of being clogged with oil?

Does it neutralize acids?

Does it cost only about 8c per lb. of refrigerant protected?

You can use Thawzone in practically any "Freon" or methyl unit. Your wholesaler has Thawzone. Phone him now. Highside Chemicals Co., 10 Colfax Ave., Clifton, N. J.

THAWZONE®

The Only Product That Destroys Water...
and Reaches All of It



Circle No. 63 on Reader Service Card

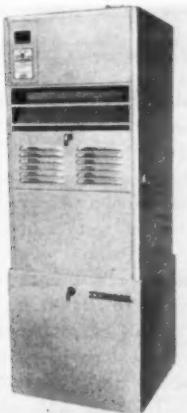
Home Conditioners

Product: Residential air conditioner "S-W" line of 2 and 3-ton units for modern basementless homes.

Manufacturer: Typhoon Air Conditioning Co., Inc., New York.

Features: Units take up about 5 sq. ft. of floor area. Heat input

ranges between 75,000 and 140,000, output ranges between 60,000 and 112,000 Btu per hour. Available for use with either gas and oil, can be



furnished for use with either water cooled or air cooled condensers. Upright model for installation in closets and utility rooms has floor dimensions of about 28 x 29", stands 80" high, is designed for overhead air distribution. Counter-flow model with same floor dimensions as upright is designed for installations using perimeter system of air distribution. For larger homes where greater cooling capacity is required, company offers "back-to-back" models available in up to 5-ton capacity. All S-W models feature automatic change-over design which allows owner to switch from heating to cooling by merely flicking a switch on the wall thermostat. Cross-pilot safety feature is on gas fired models, comprised of a solenoid control which prevents gas leakage. Units have copper condensers, oversized compressors, seamless copper tubing cooling coils with bonded helical fins are arranged at an angle.

Circle No. 118 on Reader Service Card

By-Pass Valve

Product: No. 48 line by-pass valve designed especially for manual control of year-round room-type air conditioners.

Manufacturer: Ohio Brass Co., Mansfield, Ohio.

Features: Permits some circulation in the winter, even when valve is closed, to prevent freezing. When unit is used for cooling, by-pass

turned to closed position to eliminate excess condensation. Valve has $\frac{1}{8}$ " pipe plug outlet for venting or additional by-pass service. Designed for pressure up to 150 lbs., comes in $\frac{1}{2}$ " size only. Installation of the by-pass valve and the firm's balancing valve can be used on same cooling and heating units. By-pass usually goes on upper side of coil and balancing valve on lower side. Valves can be operated separately.

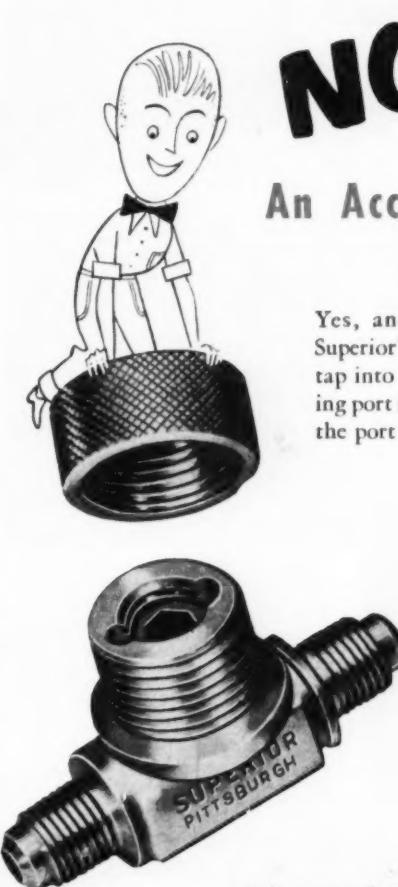
Circle No. 119 on Reader Service Card

Anti-Sun Protection

Product: Thermoglare spray-on plastic film and sheet plastic for protection against heat, glare and ultra-violet rays from the sun.

Manufacturer: Eastern Industrial Service, Inc., Cambridge, Mass.

Features: Laboratory and field tests indicate products will filter out ultra-violet rays up to 95%, reduce transmission of hot infra-red rays up to 80% and eliminate sun glare problems. Both spray and sheet plastic are translucent.



An Access Tee For Hermetic Units!

Yes, and a fool-proof tee at that! Superior's new access tee allows you to tap into a sealed unit where the charging port is stuck or is in a location where the port is extremely difficult to reach.

- ▶ Use for purging, charging, or attaching a gauge
- ▶ Use it repeatedly
- ▶ Fits all standard Hermetic Units
- ▶ Heavy forged brass body
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- ▶ $\frac{1}{4}$ ", $\frac{5}{16}$ " and $\frac{3}{8}$ " SAE or solder connections
- ▶ Operated by standard Hermetic Kit Valve and $\frac{1}{4}$ " hex. adapter

Ask your wholesaler for Superior Access Tees!

Superior

valve and fittings co.

Pittsburgh 26, Pa.

Circle No. 64 on Reader Service Card



Film is sprayed on windows while sheet plastic is shatter-proof and is designed to be used instead of glass window panes. Both types are weather resistant, provide diffused working light.

Circle No. 120 on Reader Service Card

Penthouse Fan

Product: Type PH and PHD streamlined penthouse fan unit.

Manufacturer: Chelsea Fan & Blower Co., Inc., Plainfield, N.J.

Features: Streamlining minimizes obstruction to air stream, reduces air impact and rumble. Undercoated with noise deadening material. Overhanging front section has by-pass tray, discharging onto roof any water which passes through shutters during severe rains. Motors totally enclosed or explosion proof. Interior walls insulated. Recommended for use in conjunction with automatic ceiling shutters, installed directly below unit where ceiling temperatures are 75 F plus. When fan is turned off, shutters prevent

heated air from condensing on cold walls of penthouse. Available in sizes 12 to 60", 5,000 to 40,000 cfm. PH unit uses belt drive fan, PHD takes direct drive.

Circle No. 121 on Reader Service Card

Portable Dehumidifier

Product: Fresh'nd-Aire Model D750A portable electric room dehumidifier.

Manufacturer: Fresh'nd-Aire Co., Div. of Cory Corp., Chicago, Ill.

Features: Will control moisture in areas up to 10,000 sq. ft., remove up to 3 gal. of moisture every 24 hours. Unit has $\frac{1}{8}$ -hp condensing unit which draws only 200 watts, used only with 115 volt, 50/60

... at long last!!

CLEAN CONDENSERS

Without { ACIDIZING
OR
RODDING!

AUGUST 5, 1952

MARCH 20, 1953

UNRETOUCHED PHOTOGRAPHS

Buchanan Refrigeration Service (of Redwood City) made the Broadway Market installation. Foreman's (of Belmont, Calif.) made the photographs.

Parts Applied for

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FRANCHISED REGIONAL DISTRIBUTORS

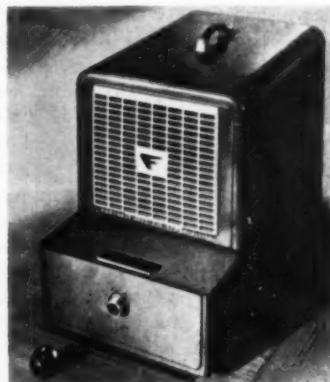
WHITTIER (Calif.) KEN-EVIS COMPANY 1120 E. Whittier, 733-2414

SAN BERNARDINO (Calif.) KNOPPER & WRIGHT 220 E. 4th St., SB 8-7838

SAN FRANCISCO NORTH-EVIS AGENCY 1000 Franklin Ave., MI 7-1822

DALLAS WATER CONDITIONED SALES CORP. EVIS SOUTHWEST CO. Western Amer. Life Bldg., 2-5819 6817 Chevy Chase, E.M. 0-137

EVIS IS NOT A SOFTENER



cycle ac current. Features "in-a-drawer" glass fiber container with knob on the front which unscrews if desired for attachment of ordinary garden hose to run into floor drain. Unit is $1\frac{1}{4}$ " high, $11\frac{1}{4}$ " wide, $18\frac{1}{2}$ " long, weighs 52 lbs. Available accessories include automatic timer and four-swivel caster dolly. 5-year warranty.

Circle No. 122 on Reader Service Card

Air Diffusers

Product: "Agitair Stripline" types S and F continuous air diffusers.

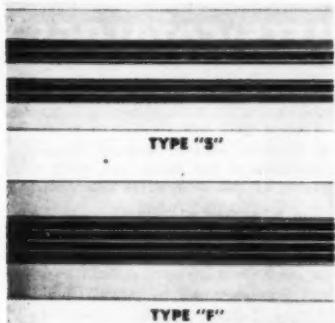
Manufacturer: Air Devices Inc., New York City.

Features: Units employ vane principle of air distribution with built-in diffusing vanes which produce high turbulence, aspiration and rapid temperature equalization.

Circle No. 65 on Reader Service Card

JULY, 1953 • COMMERCIAL REFRIGERATION

Insures continuous blanket of unvaried air over a predetermined area without noticeable air motion.



Eliminates drafts, hot or cold spots in occupied zone. Slender design blends with room design.

Circle No. 123 on Reader Service Card

Year-Round Room Cooler

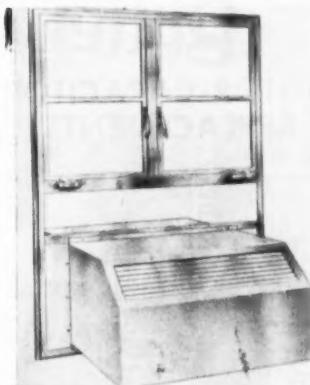
Product: "Edeo" heavy duty, year-round window-type room air conditioner.

Manufacturer: A. V. Cauhorn Co., Detroit, Mich.

Features: Unit provides heating, cooling, circulating, dehumidifying, exhaust functions. Heavy duty equipment designed for industrial and commercial as well as home use. Cools up to 475-sq. ft. room area. Has 1" filter. Air distributed from top of unit, eliminating drafts. Two-speed, life oiled motor for high and low speed selectivity. Equipped with $\frac{3}{4}$ -hp. Tecumseh hermetically sealed compressor. Master knob control enables owner to "dial" weather selection. Unit is 26 $\frac{1}{2}$ " wide, 16" high, 30" deep. Projects only 14" into room. Compressor covered by 5-year warranty.

Circle No. 124 on Reader Service Card

window air conditioner, including Frigidaire, Carrier, Chrysler, General Electric, York, RCA, etc. Manufactured in four standard types and sizes, window embodies an adjustable member which enables installa-



Steel Casement Window

Product: Steelcraft steel casement window.

Manufacturer: Steelcraft Mfg. Co., Rossmoyne, Ohio.

Features: Designed so that standard air conditioning units can be installed without removal of any window parts, cutting or welding. Window will fit any standard win-

tion of virtually any size unit. Developed in conjunction with some twenty unit manufacturers, windows are available at slightly higher cost than standard Steelcraft casements.

Circle No. 125 on Reader Service Card

**BUY FROM YOUR
REFRIGERATION WHOLESALER**

A large black and white photograph of the Eastern Condensate Disposal Unit, Model 3 Type 100. The unit is a rectangular metal box with a ribbed front panel. The brand name 'Eastern' is printed in a stylized font across the front. To the left of the unit, there is a smaller component, possibly a receiver tank or part of the condensate system. The word 'NEW' is prominently displayed in large, bold, outlined letters above the main unit.

Model 3 Type 100

**HOT
OR COLD**

CONDENSATE DISPOSAL UNIT

This completely automatic foolproof unit removes hot or cold condensate fluids from the receiver tank and pumps it to an outside drain. Designed for simple installation in air conditioning units, the Eastern Condensate Disposal Unit offers low operating cost with fully automatic control and quiet, reliable operation. Free specification sheet CD-10 on request.

Eastern
INDUSTRIES, INC.
296 ELM ST., NEW HAVEN, CONN.

Circle No. 66 on Reader Service Card

Simpler... Quicker... Better...

MOTOR-CAPACITOR REPLACEMENTS



Since there's no substitute for experience, please note . . .

AEROVox pioneered in motor-starting capacitors.

AEROVox has supplied the major portion of such capacitors in daily use.

AEROVox keeping faith with manufacturers and users alike, makes available the outstanding line of exact-duplicate and universal replacements.

AEROVox provides servicing aids — exceptional listings, Capacitor Selector, Emergency Capacitor, etc.

AEROVox distributors everywhere carry representative stocks of motor capacitors and service aids.

Simpler . . . quicker . . . better . . . meaning more jobs and more profits for you. Ask your supplier about Aerovox motor-capacitor servicing.



AEROVox CORPORATION

NEW BEDFORD MASS.

In Canada: AEROVox CANADA LTD., Hamilton, Ont.
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Circle No. 67 on Reader Service Card
84

USEFUL

BULLETINS • BOOKLETS • CATALOGS

The publications listed below are available to readers without charge. Simply circle on the postcard in this issue the key numbers of the items you wish to receive. Your requests will be forwarded directly to the companies concerned.

THE T-FLO PRINCIPLE, an innovation in drier design, as incorporated in the T-Flo drier manufactured by Ansul Chemical Co., is featured in an 8-page, 2-color pamphlet offered by the manufacturer. In addition to describing the new drier, the pamphlet also includes a detailed description of "Andrite", the dessicant used in the new drier. A cut-away drawing of the drier illustrates the T-Flo principle and a series of photographs shows the simple procedures necessary for installing the drier in a refrigeration line.

Circle No. 131 on Reader Service Card

FACTORY ASSEMBLED water systems for both shallow and deep wells made by Lancaster Pump & Mfg. Co., Inc. are described and illustrated in literature available from the company. Information on the "Zepher Pak", "Aqua Pak", "Turbo Pak" with illustrations of each are included. Applications, exclusive features and dimensions are listed for each system.

Circle No. 132 on Reader Service Card

TUBING TOOLS featuring "Form-a-Gage" flaring tool with height gauge and double flare plate are described in an illustrated folder available from Penn Brass & Copper Co. Photographs show the 5-step procedure in obtaining a double flare with the Form-a-Gage. Also illustrated are the #400 flaring tool and the #500 cutting tool.

Circle No. 133 on Reader Service Card

SAFETY VALVES for refrigeration systems are described and illustrated in a 4-page bulletin presented by Frick Co. Bulletin No. 194 features type AF safety valves and tables furnish information on pressures resulting from various size inlet pipes for ammonia, Freon 12 and 22. A valve selection table for type of service expected is included.

Circle No. 134 on Reader Service Card

ONE OF THE MOST COMPLETE bulletins available on any insulating material is presented by Pittsburgh Corning Corp. on their "Foamglas" insulation. Form FL-100 contains 24 pages packed with photographs, drawings and charts illustrating the information given on the insulation's features which include being impervious to moisture, vermin proof, non-combustible, installation ease, versatility and many more. Application instructions for floors, walls and ceilings are also included.

Circle No. 135 on Reader Service Card

A HOT WEATHER CATALOG has been prepared and presented by S. & R. Soda Fountain Mfg. Co. Featured in the new catalog are photographs of a wide variety of soda fountain units in the new line of standard models. Of special note is the large all-purpose 50-gallon creamer which is featured.

Circle No. 136 on Reader Service Card

(More Useful Literature on page 86)

JULY, 1953 • COMMERCIAL REFRIGERATION

When your business depends on Cold

YOU CAN DEPEND ON

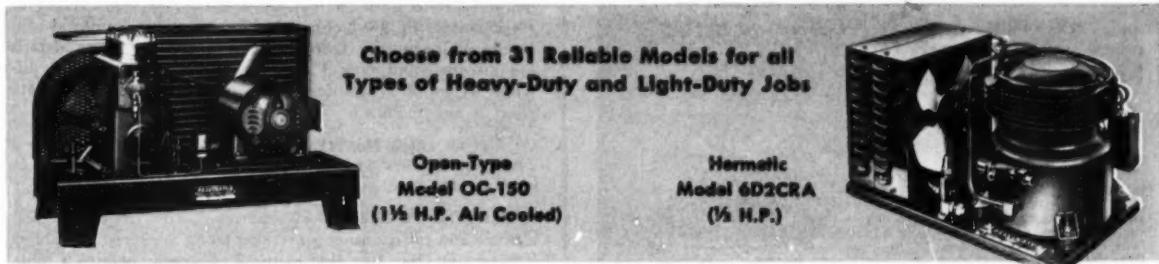
Kelvinator!



A RESTAURANT OPERATOR, caterer or institutions food center manager couldn't continue to serve the public if he didn't have a dependable source of refrigeration. For 39 years, Kelvinator has been supplying more and more businesses that depend on cold, with efficient, uninterrupted refrigeration.

The 1953 Kelvinator "Cold Making" Units are the most efficiently designed you can buy today. You have a choice of 15 Kelvinator open-type units, from $\frac{1}{4}$ H.P. up to 5 H.P., and 16 hermetic units up to $\frac{1}{2}$ H.P., including the new Freon-22 models.

For full information on Kelvinator's complete line of commercial refrigeration equipment, contact your Kelvinator distributor . . . or write Kelvinator, Division of Nash-Kelvinator Corp., Detroit 32, Mich.



For Profit Today . . . Tomorrow . . . and Always . . .

Depend on Kelvinator

SPECIALISTS IN REFRIGERATION SINCE 1914

Circle No. 68 in Reader Service Card

and AIR CONDITIONING • JULY, 1953

Circle No. 69 on Reader Service Card

NOW... SAVE TIME—SAVE MONEY



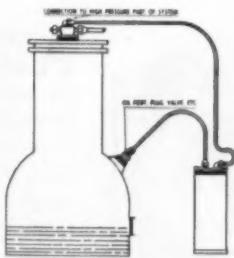
with the new "Pressure-speed" oiler in adding oil to all type refrigeration units.

- **No Dirt!**
- **No Mess!**
- **No Waste!**

ESPECIALLY GOOD
FOR SEALED UNITS.

Simple to Use—

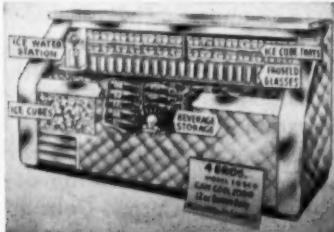
Just fill with oil and let the High-side Pressure or a Refrigerant Cylinder Pressure force in the correct charge. Holds one quart. In many cases it is not even necessary to interrupt the operation of the system.



Write direct or see your local wholesaler.

REFRIGERATION DEVICES CO.
P. O. BOX 108-A NUTLEY, N. J.

IT'S NEW! IT'S ORIGINAL! DELUXE COMBINATION



Sizes: 5'-6"-7'-8"-9'-10 ft.
Model 1-6 SC-D
27" wide and 39" high.

It's NEW!
DELUXE MODEL 40 FC →
3-in-1 Upright Comb.
FREEZER-STORAGE
REFRIGERATOR

—with refrigerated cooled water station

Model 40-FC, 15 cu. ft. freezer and 25 cu. ft. of normal temperature storage space, convenient water station. 3 Big Features in the space of one. Does the work of 3 cases. 2430 stainless quilted steel with radius corners and vapor-proof tank, 3" insulation, 28" deep, 56" wide, 75" high.

Other sizes with 2 doors or self-cont. Kelvinator Hermetic unit.

Write for full information
Illustrated Catalog Free!



4-BROS. REFRIGERATION MFG. CO.

Factory & Showrooms: 1427-31 So. 8th St., Philadelphia 47, Pa.
Exclusive Franchise Available to Select Dealers & Distributors

Circle No. 70 on Reader Service Card

USEFUL LITERATURE . . .

Continued from page 84

INTEGRAL HORSEPOWER line of jet pumps made by A. Y. McDonald Mfg. Co. are described in a new bulletin available from the company. Described in bulletin 2500A are convertible, single stage units available for shallow or deep well application in sizes from $\frac{1}{2}$ to 5-hp. These pumps are capable of lifting water from a maximum depth of 260 ft. for maximum tank pressure at ground level of 50 to 70 lbs., depending on size of pump used.

Circle No. 137 on Reader Service Card

FLEXIBLE AND LIQUID-TIGHT electrical wiring conduit type UA is featured in catalog UA-530 available from American Brass Co., American Metal Hose Branch. This 2-page, 3-color catalog contains illustrations of typical installations which show applications in various fields. A cutaway view of the "Sealtite" conduit shows construction details. Also contained is information on type EF conduit for extra flexibility needs.

Circle No. 138 on Reader Service Card

MY LIFE STORY by A. "Permagran" Granule is the novel title McIntire Co. has tacked onto the bulletin describing its new type dessicant. Describing his early development, growth and final development, "Mr. Granule" covers many interesting points connected with dessicants, their compositions and applications. Also included on the back cover are photographs of various types of driers, filters and strainers in which the dessicant is employed.

Circle No. 139 on Reader Service Card

DRY WALL INSULATION methods for "Fiberglas" cold storage insulation are described and illustrated in a 16-page bulletin presented by Owens-Corning Fiberglas Corp. The booklet outlines in detail the three dry wall methods for insulating freezer rooms in addition to the traditional hot dip method. Design details for roof and floor insulation are also listed in the brochure which includes 27 pictures and nine drawings.

Circle No. 140 on Reader Service Card

CIRCUIT BREAKER APPLICATION to reduce downtime and maintenance is discussed in booklet B-5456 offered by Westinghouse Electric Corp. Actual cases show how replacement of fused devices by AB-1 circuit breakers result in improved continuity of operation. Complete design and operating details are provided and typical applications for each of seven different types of enclosures are given. A basic selection-data chart is also included.

Circle No. 141 on Reader Service Card

A PLASTIC POCKET-CARD imprinted with frequently used altitude and refrigeration conversion tables is offered by Tenney Engineering, Inc. One side of the 2×6 " card contains a table converting altitude to pressure in inches of mercury, pounds per square inch, and millimeters of mercury, as well as a 6" straight edge, marked off in increments of one-sixteenth of an inch. The other side gives pressures of Freon 13, 22, 12 and 14 over a wide temperature range, both Fahrenheit and Centigrade. Algebraic equations for converting Fahrenheit to Centigrade and back again are also included. Altitude conversion tables range from 0 to 26,000 ft., pressure-temperature table ranges from -250 to 110F.

Circle No. 142 on Reader Service Card

GLASS FIBER PIPE INSULATION manufactured by Gustin-Bacon Mfg. Co. is featured in a 6-page folder presented by the company. In describing G-B "Ultrafine" insulation, the folder contains information on composition, thermal efficiency, physical and handling characteristics. Photographs clearly illustrate application procedures and other unique advantages offered by this type insulation. Packaging data, heat loss comparisons between bare and insulated pipe and comparative "K" factors are tabulated.

Circle No. 143 on Reader Service Card

PLASTIC LIDS AND SUPERSTRUCTURES for installation on ice cream cabinets are described and illustrated in a 4-page bulletin offered by Thermacote Co. Describing the "Vista Dome" transparent lids and "Live" plastic superstructures, the bulletin contains illustrations showing installation on various size cabinets. Dimensions for both lids and superstructures are given.

Circle No. 144 on Reader Service Card

A PROBLEM SOLVER for users of portable power saws is the new catalog offered by Skil Corp. The 24-page, pocket-size catalog lists 30 different materials and the most effective way of cutting them with a portable power saw. Illustrations show proper type blades for varying materials to be cut. Proper cutting techniques are discussed and helpful hints and suggestions are also included.

Circle No. 145 on Reader Service Card

BALANCING VALVE which controls both water flow and shuts off tight are described in a folder released by Ohio Brass Co. These "Equatemp" valves, especially suited for air conditioning and heating applications, are discussed in this folder along with the No. 48 line of by-pass valves, designed for application as a manual control of year-round air conditioning units.

Circle No. 146 on Reader Service Card

THE COMPLETE STORY on industrial controls manufactured by Barber-Colman Co. is told in a 32-page catalog (F-3941-2) now available from the company. Containing complete information on temperature and humidity controls as well as motor operated valves and control motors, this illustrated catalog also contains control terminology with illustrations showing wiring hook-ups. Illustrations and dimensions of each type control and valve are included.

Circle No. 147 on Reader Service Card

HUMIDITY INDICATOR CARDS are featured in a 4-page brochure offered by Andrew Technical Service. Contained in the brochure are photographs showing typical applications of the "Humigraph," such as distribution to meat dealers for checking coolers against costly shrinkage conditions, promotional "gimmicks" for use in conjunction with the sale of humidifiers and de-humidifiers, etc. Relative humidity is scaled by reference to color change in seven indicator spots. Free samples and more detailed literature is available.

Circle No. 148 on Reader Service Card

**Want Useful Literature on
AIR CONDITIONING?
Turn to page 76.**

and AIR CONDITIONING • JULY, 1953

**ENGINEERED WITH A
*decorator's touch***



SPOTAIRE
REMOTE AIR CONDITIONER

Quiet Beyond Belief

Smartly finished in gray hammertone enamel, the Spotaire VRC Series, is fashioned to grace any residential, commercial or institutional setting.

Here's convenience, comfort, economy and flexibility. Spotaire offers individual controlled air conditioning—plus the silence of a central duct system but less the costly and extensive ducts.

Illustrated with the VRC Series is the Spotaire HRC Series, the world's finest concealed air conditioning unit...equal only to the VRC Series in function and economy.

Just check these advantages:

- Quiet Beyond Belief.
- Large slow-speed direct connected blower.
- Installed like a radiator (VRC Series).
- For Freon or hot and cold water circulation.
- Heats, cools, dehumidifies, ventilates and filters.
- Lower initial and operating cost.

Long established in commercial refrigeration and air conditioning, Drayer-Hanson offers a complete line of air conditioning and refrigeration products. Catalogs are available upon request.

A limited number of territories are available for qualified manufacturers' representatives.



drayer-hanson
INCORPORATED

3301 MEDFORD STREET, LOS ANGELES 63, CALIFORNIA

Circle No. 71 on Reader Service Card

NEW PRODUCTS

For further information on any of these products, simply circle on the postcard provided in this issue the key numbers of the items in which you are interested. Your requests will be forwarded directly to the companies concerned.

Centrifugal Pumps

Product: "Little Giant" series of hermetically sealed in oil, small centrifugal pumps.

Manufacturer: Samuel S. Gelber Co., Chicago, Ill.

Features: For use where small, low pressure, high volume pump is required. Made of die-cast aluminum, treated with baked-on coating to prevent corrosion. Available in three sizes, handling 180, 350 and 475 gallons per hour and capable of 17½' lift. Can be used as either immersion or horizontal pump, can develop suction lift by use of small



foot valve. Sealed pump advantages include: Motor windings cannot become wet; No service necessary, oil supply good for life of pump; Can be operated fully submerged, will pick up within ½" of the bottom. Neoprene seals enable pump to circulate liquids other than water.

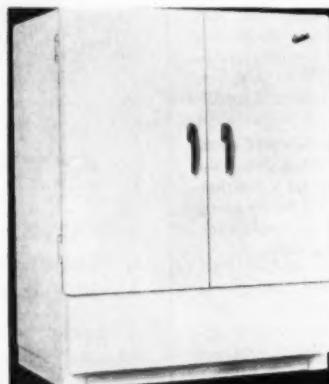
Circle No. 151 on Reader Service Card

Big Upright Freezer

Product: Model UF-32 upright freezer.

Manufacturer: United Refrigerator Co., Hudson, Wis.

Features: Freezer volume is 32 cu. ft., without noticeable increase in floor space. All-steel construction including dual doors, balanced freezing engineering. Two coiled fast-freeze shelves, bottom of liner coiled for fast freezing. Four adjustable wire half shelves. Fully self-contained. Equipped with ½-hp hermetically sealed condensing



unit. Exterior dimensions, 70" high, 56" wide, 35½" deep with doors and hardware. Refrigerated shelf depth is about 25". Easily adapted for use as a bakery freezer by installation of United bakery kit adapter which is available at slight additional charge. Will hold 42 standard bakery pans.

Circle No. 152 on Reader Service Card

Needle Valve

Product: All-steel construction needle valve designed for working pressures up to 10,000 psi.

Manufacturer: Jas. P. Marsh Corp., Skokie, Ill.

Features: Valve bodies and valve stem guides machined from heavy bar stock steel, joined into one-piece construction by exclusive process known as "Conoweld". This

fusing process rather than usual threaded connection provides leak-proof joint, eliminates danger of valve stem becoming loose while unscrewing valve stem. Deep chambered threads machined to extra length, permits even undersized pipe threads to make up tightly, eliminates flow restriction due to pipe ends coming too close to inlet



and outlet ports. Valve stems of 416 stainless steel with fine pitch threads have been engineered to permit close throttling while retaining necessary strength to withstand pressures of twice the normal working pressure. "Marpak" special durable quality packing tailor fit to the extra deep packing space. Valve body, packing gland and packing nut are electro zinc plated to prevent corrosion.

Circle No. 153 on Reader Service Card

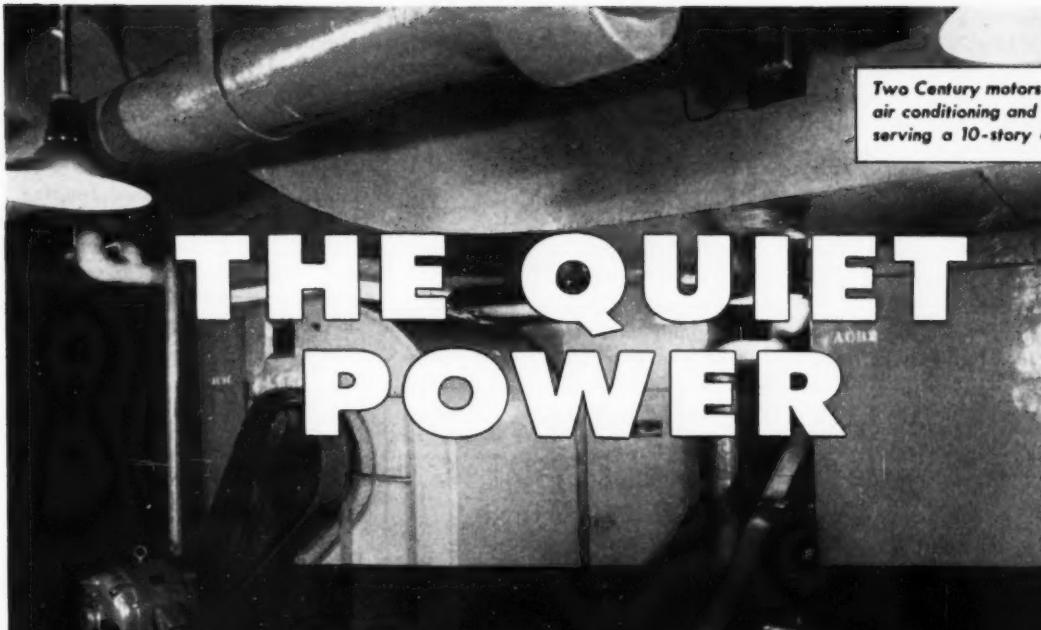
Dessert Display Case

Product: "Frigidessert" self-contained refrigerated dessert display case.



Manufacturer: Stainless Food Equipment Co., Newark, N.J.

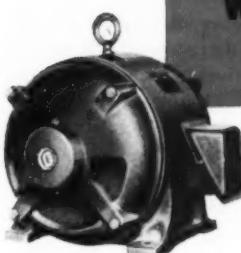
Features: Provides 11 sq. ft. of refrigerated and illuminated dessert display in 4 running feet of back counter display. Compressor unit



Two Century motors installed on an air conditioning and heating system serving a 10-story office building.

THE QUIET POWER OF *Century* MOTORS

WILL HELP KEEP YOUR CUSTOMERS HAPPY



To assure quiet starting and efficient, dependable operation manufacturers do two things. They engineer their equipment skillfully and they choose motors carefully to bring out the best performance in their equipment.

Many leading manufacturers of heating, ventilating and air conditioning equipment depend on Century motors. They have found that Century's wide range of motor sizes and types helps them select motors that are exactly right for every job.

Century motor-power on the equipment you install is your first step toward complete customer satisfaction. Remember, Century's nationwide network of Branch Offices and Authorized Distributors is always at your service to help you with your motor problems.

400 TO 1/8 HORSEPOWER



CENTURY ELECTRIC COMPANY

1806 Pine Street, St. Louis 3, Missouri
Offices and Stock Points in Principal Cities

Circle No. 72 on Reader Service Card

and AIR CONDITIONING • JULY, 1953

carries 5-year guarantee, is built into the 48 x 17 x 24" high cabinet. User plugs into 110-volt outlet and unit operates. Fluorescent lighting. Three adjustable wire shelves are 32" long, will hold 12" pies.

Circle No. 154 on Reader Service Card

Upright Home Freezer

Product: "Twin-Door" 32-cu ft. home upright freezer.

Manufacturer: McCray Refrigerator Co., Inc., Kendallville, Ind.



Features: Large capacity freezer will hold over $\frac{1}{2}$ ton of frozen food, can operate at a temperature

as low as -28F. Deep well storage bin has freezing space of over 4 cu. ft. plus a continuous 4 cu. ft. space above the well. Four "Kold-flo" freezing shelves circulate refrigerated air throughout freezer. Conventional center shelf can be removed for large package freezing. High baked white enamel finish. Chrome-plated hardware. Models will be available with green tinted door liners and interiors. Width 58", depth 30", height 70"

Circle No. 155 on Reader Service Card

MAGIC JET CARBONATORS WITH BUILT-IN EXCLUSIVE PATENTED JET FOAMESCENT CARBONATION METHOD

U. S. PATENT NO. 2,588,677

(Also Vertical Models)

- FULLY WARRANTED
- NATIONALLY ADVERTISED
- FACTORY SALES AND SERVICE ASSISTANCE
- PREFERRED BY LEADING USERS

PATENTED NEW JET FOAMESCENT PRINCIPLE PRODUCES GAS-FILLED BUBBLES



• New carbonation method foams ordinary tap water at high velocity into pressure tank containing CO₂ gas. Special recirculating principle breaks down water surface tension, forms countless bubbles, filled and surrounded with CO₂ gas. No pre-cooling of water is necessary, yet a higher degree of carbonation is achieved than any faucet can dispense and the resulting carbonated beverage is many times more active and zestful.

"MORE BUBBLES WITH LESS TROUBLES"
MAIL THIS COUPON TODAY

For literature outlining the opportunity now open to make bigger profits selling Carbonic Dispenser Equipment.

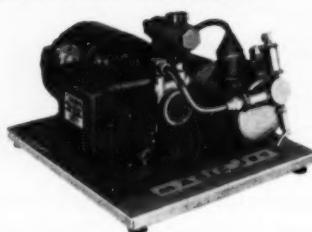
Name _____

Address _____

City _____

State _____

Circle No. 73 on Reader Service Card



PUTS MAGIC IN YOUR CUSTOMERS' SODA FOUNTAINS AND BARS

- 100-GALLONS-PER-HOUR CAPACITY
- INSTANT AUTOMATIC ACTION
- QUIET, SAFE, EFFICIENT

SODAMASTER DISPENSERS & SYSTEMS

MIX-MONITOR FAUCETS



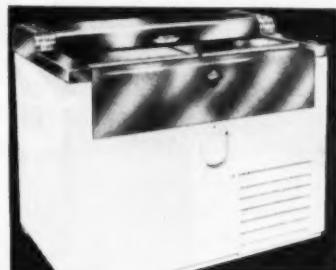
General Offices: Canfield, Ohio.
Branch Offices:
1851 Randolph St., Los Angeles, Calif.

Beverage Coolers

Product: Models 4UC and 6UC self-contained beverage cooler.

Manufacturer: Fogel Refrigerator Co., Philadelphia, Pa.

Features: Available in 4 and 6' lengths, units measure 29" deep, 37" high. All welded steel con-



struction, heavy density glass fiber insulation, durable hard baked enamel exteriors, stainless steel tops, doors and front aprons. Model 4UC has capacity of 16 cases of 6 oz. bottles or 12 cases of 12 oz. bottles. Model 6UC holds 30 cases of 6 oz. bottles or 24 cases of 12 oz. bottles. Both models utilize Fogel-Aire dry refrigeration system, incorporates blower coil powered by $\frac{1}{4}$ -hp hermetically sealed condensing unit.

Circle No. 156 on Reader Service Card

Water Cooler Line

Product: Streamlined "Diamond Anniversary" water cooler line.

Manufacturer: General Electric Co., Bloomfield, N. J.

Features: Front apron of stainless steel at top and louvered front panel that tapers in from top to bottom. Full width pedal at foot of cooler enables control of drinking water from any point in front of

the unit. Cabinet measures 14½" wide, 12½" deep and 41" high. Bubbler guard is built as part of the top piece eliminating need for separate installation. Stainless steel top has been electropolished to make



it more resistant to finger marks. Louvered front panel snaps off for easy and quick access to interior of the unit. All mechanisms and controls are readily available for maintenance and adjustment. Eight different settings allow wide range of water temperatures. Motor compressor completely sealed in steel. Refrigerant system carries 5-year warranty. Standard water connections. Available in 10 models from 4 to 20 gallon capacity, and including bottle coolers.

Circle No. 157 on Reader Service Card

Self-Service Cabinet

Product: Self-contained, self-service frozen food display case.

Manufacturer: Ace Cabinet Corp., New Bedford, Mass.



Features: Condensation reduced by low wattage heating element installed beneath lower door track providing enough retardation of condensation to assure clear visibility through the sliding glass

doors. All dividers equipped with defroster channels. Manufactured in sizes to accommodate 495 to 1170 standard frozen food packages. Hermetically sealed condensing unit is accessible by a special glide-out mechanism. Temperature control from zero to sub-zero adjustment. Heavy gage body, completely insulated against moisture and vapor infiltration. Triple-baked white enamel finish will not discolor, is impervious to acid stain. Cabinet top is one-piece stainless steel. Heavy non-conducting breaker

strips separate evaporator from the top. One-piece superstructure is welded for added strength. Furnished with full color pictures, product strips and prices.

Circle No. 158 on Reader Service Card

Ice Storage Bin

Product: Model FI-2000 ice bin for storage of large quantities of ice over long periods.

Manufacturer: Dunhill Soda Fountain Corp., Brooklyn, N.Y.

For Recognized Quality - Extra Gallons

Sell Your Condensing Unit

Filtrine Water Coolers

Promote your own condensing unit sales with Filtrine's 20-year-life construction...high capacity...Super Storage...more than 40 years' dependability.

COOLERS FOR MESS HALLS - CAFETERIAS

Conform with Fed. Spec. OO-C-566b

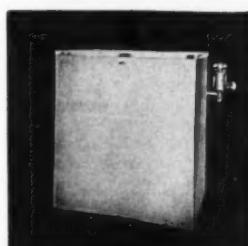
COOLERS FOR X-RAY & PHOTOGRAPHY

PACKAGED CIRCULATING CHILLED WATER SYSTEMS

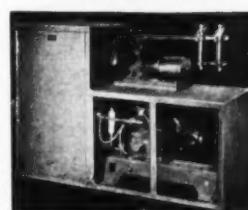
REMOTE COOLERS FOR ALL USES



Mess Hall—Cafeteria Cooler



Photographic—X-ray Cooler



Typical "Packaged" Circulating Chilled Water System

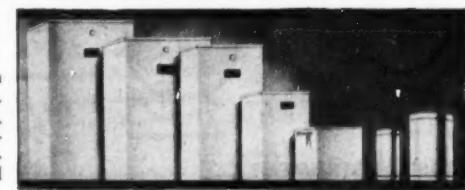
Sell your condensing unit with remote models for new and replacement jobs—all applications. Capacities 10—1000 g.p.h.; storage 7—300 gals. Filters, Rectifier-Dechlorinators available for all sizes.



Taste-Master

Sell your condensing unit with Filtrine models repeatedly named by V.A., Signal Corps, Air Force, etc. for X-ray, and photo-labs. Under counter design and floor-mounted models with stainless steel work-table top. Filters (extra) to prevent scratched and pin-holed negatives.

Sell your condensing unit! Systems for drinking or processing water—completely packaged with pump, controls, your condensing unit factory installed. Capacities 5—400 g.p.h.; storage 5—150 gals. Filters and Rectifier-Dechlorinators (extra) to insure taste-free, sparkling water.



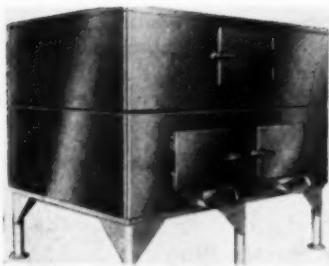
Remote Model Coolers



Write for Catalog and Specification Guide
FILTRINE MANUFACTURING COMPANY • BROOKLYN 5 • N.Y.

"Water Coolers and Filters for 40 Years"

Circle No. 74 on Reader Service Card



Features: One ton of ice can be stored in this bin for long periods of time. Two-inch thick cork board insulation used throughout. Entire

shell treated with moisture-proof adhesive cement to create airtight cabinet. Cork board is laminated and also treated with same adhesive. Constructed of 20 gage stainless steel with all seams and joints spot welded and soldered for water tightness. Bin is made in two sections. Top section has one door, lower section has two. Bin is 72" wide, 52" deep, 45" high. Legs are tubular steel reinforced with angular steel frame. Brass forged, heavily chrome plated hardware.

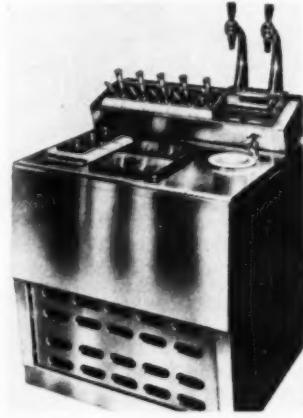
Circle No. 159 on Reader Service Card

Self-Contained Bobtail

Product: Economy bobtail fountain unit.

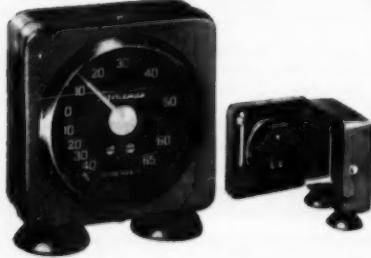
Manufacturer: Stanley Knight Corp., Chicago, Ill.

Features: Unit is only 2'9" long with standard height and depth. Self-contained condensing unit available with 5-year warranty at slight extra charge. Carbonator mounted



Know the "Serviceman" line of testing equipment

1 The "Serviceman" Testing Thermometers



Here is the handsome new model of the Marsh "Serviceman"—the instrument that for many years has been recognized as the handiest and best testing thermometer. Simply pull out the five foot length of tubing from the back of the case (see cut), then run the bulb to point of measurement. Readings are made as they should be: with door closed.

The single scale type illustrated is available in ranges of -10° to $+100^{\circ}$ F. and -40° to $+650^{\circ}$ F., adequate for any cold box testing. Deluxe model in same temperature ranges has two added scales showing corresponding pressures of Freon-12 and Freon-22. The Marsh Recalibrator, easily accessible in back of reel, enables you to keep this instrument accurate at all times.

And don't overlook that handy little pocket thermometer, opposite... highly accurate; easy to read; furnished with swivel clip to hang it in refrigerator or clip it in your pocket.



2 The "Serviceman" Testing Gauges



Something new, something far better... that is the story of these extremely accurate testing gauges. They are dressed in handsome polished brass cases with glass crystal and knurled screwed ring which gives quick access to the "Recalibrator" to keep them always accurate. Retard scale on 30" x 200 lb. compound gauge gives close reading in important testing range. Both the compound and the 0-300 lb. pressure gauge have knife edge pointers for use on manifolds and other testing operations. Note also the four-scale corresponding temperature gauge, opposite, with three extra color-differentiated scales covering sulphur dioxide, methyl chloride and Freon. Made in ranges for all requirements. All testing gauges have $2\frac{1}{2}$ " dials.

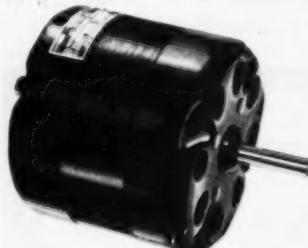
See your jobber about Marsh Testing Instruments, or write for facts.

in new manner allows easy installation in lower section of unit. Five stainless steel syrup pumps supply accurate measure, are fully adjustable. Three close-tight crushed fruit jar assemblies plus built-in dipper-well also available. Unit meets "Standard No. 1" set up by National Sanitation Foundation.

Circle No. 160 on Reader Service Card

Fan Motor

Product: Model 4400 electric motor for fan duty in refrigeration and air conditioning applications.



Manufacturer: Electric Motor Corp., Div. of Howard Industries, Inc., Racine, Wis.

Features: Shaded pole motor available in three stacking lengths for various output power ranging from $1/25$ to $1/11$ hp. Motor currently

MARSH INSTRUMENT CO. Sales affiliate of Jas. P. Marsh Corp., Dept. P, Skokie, Ill.

MARSH *Refrigeration
Instruments*

Circle No. 75 on Reader Service Card

It's almost as though they were
MADE FOR EACH OTHER . . .



Solenoid Valves and ALL Water Convector!

The modern approach to year-round heating and cooling embodies the use of water convectors handling chilled water for summer cooling or warm water for winter heating.

The economical answer to controlling the water convector is J-E SOLENOID VALVES, used with a simple summer-winter thermostat. No complicated, costly control wiring or piping is required. J-E SOLENOID VALVES are quiet in operation, soft seated for positive shut-off, and may be installed in vertical lines for economical piping layouts. Most installations need no individual strainers.



All J-E Valves have these Dependable Features:

- Tight Seating — no bubble tolerance
- Simplicity — only two moving parts
- Long Life — coil coils
- Durability — all corrosion-resistant material
- Opening pressure differential — higher than most others on the market

For full information see your J-E wholesaler or write us today.

JACKES-EVANS MANUFACTURING COMPANY CONTROLS DIVISION
4427 GERALDINE AVE • ST. LOUIS 15, MISSOURI

Circle No. 76 on Reader Service Card

and AIR CONDITIONING • JULY, 1953

being used in window-type ventilating fans. Speed with full load is 1400 rpm; without load, 1750 rpm. Motors operate on 115 volts.

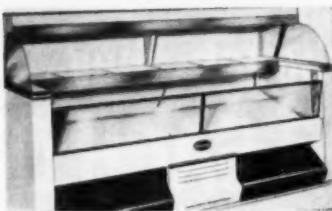
Circle No. 161 on Reader Service Card

Produce Display Cases

Product: Line of refrigerated produce display cases.

Manufacturer: National Market Equipment Co., Royal Oak, Mich.

Features: Automatic defrosting, fully-adjustable, tilting display



shelves, removable lower bins for dry-item storage. Sectionally divided top shelf provides for citrus fruit display. Cases are manufactured in 8' lengths, are finished in white baked enamel, with porce-

lain finish display shelves. Model in illustration is No. OPS-8, furnished complete with canopy-type superstructure. Other models in the line include an all-glass top "wrap-around" type and an open-deck unit without superstructure of any kind, accessible from either side.

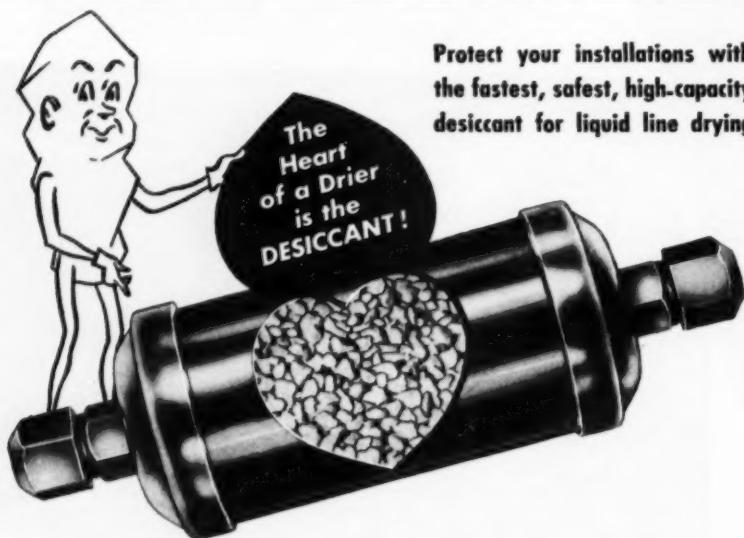
Circle No. 162 on Reader Service Card

Ice Making Machine

Product: Ajax "Pebble" ice maker.

Manufacturer: Ajax Corp. of America, Evansville, Ind.

Features: Pebble ice produced by this machine is similar to crushed ice but is dry and non-mushy. Avail-



Install MCINTIRE DC FILTER-DRIERS charged with

New **PERMAGRAN***
U. S. PAT. NO. 2,625,516
Hardened, stabilized granular desiccant

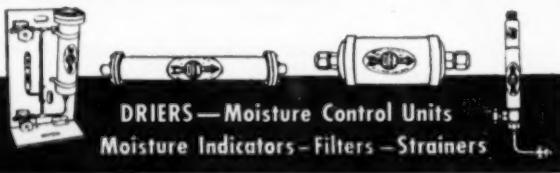
- Positively no powdering or dusting.
- Not affected by acids, alcohol, oils, refrigerants or high liquid line temperatures.
- For all refrigerants.

*Trademark Reg. U.S. Pat. Off.

PERMAGRAN gets all the water, fast—dries to minus 60° dew point in a single pass. Absorbs and holds water at all temperature ranges. Does not powder, dust, breakdown or form any by-products. Granular structure provides greater effective surface area, permits free flow. Absorbs 20 drops per cubic inch. Combined with the effective filtering of DC Filter-Driers, your systems run clean and dry, reducing troubles and service call-backs.

Ask your wholesaler for booklet "My Life Story" or write

The McIntire Company, Livingston, N. J.



Circle No. 77 on Reader Service Card

able in three capacities; 200, 400, and 800 lbs. per day. Unit takes less than 1 sq. yd. of floor space, is 39" high for under-counter installations. Only three moving parts. Automatic cut-off switch controls ice overflow no matter what type storage container used. Machine wastes less than 3 gallons of water per day.

Circle No. 163 on Reader Service Card

Saw Attachment

Product: Cam-action saw attachment to convert rotary power of electric drills to thrust-action saw, completely eliminating use of gears.

Manufacturer: E-Z Way Tool Co., Barrington, Ill.

Features: Tool can be attached directly to any heavy duty electric drill for fast cutting of metal, plaster, masonite, plastics or other

materials. Each revolution of the drill is turned into $\frac{1}{8}$ " stroke by cam action of the saw. Specially designed blades make starting holes unnecessary but universal chuck



permits use of any make key-hole or hack saw blade. Built of cast aluminum and special alloy steel, attachment weighs only $3\frac{1}{2}$ lbs. Adjustable guide permits work in otherwise inaccessible spots. Leaves trim, smooth edge.

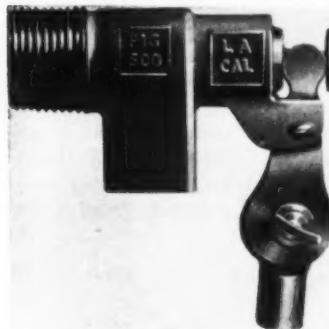
Circle No. 164 on Reader Service Card

Float Valve

Product: Fig. 500 all-brass constructed float valve.

Manufacturer: Robert Mfg. Co., Los Angeles, Cal.

Features: For standard duty applications on cooling towers, condensate systems, process equipment,



etc. Valves are available equipped with special discs for various services for which standard metal discs would be unsatisfactory. New discs will not chatter, leak or drip. Precision machined of quality material. Adjustments and repairs easily made. Ratchet arrangement of actuating lever permits quick, positive adjustment to desired fluid level. Threaded for sizes $\frac{1}{2}$ and $\frac{3}{4}$ " IPS for standard $\frac{1}{4}$ -20 stem.

Circle No. 165 in Reader Service Card

Electric Motor Line

Product: Line of heavy-duty electric motors designed especially for commercial refrigeration service.

Manufacturer: Peerless Electric Co., Warren, Ohio.

Features: Single phase motors are capacitor start-capacitor run for high power factor and elimination of single phase magnetic noise. Rugged, dependable centrifugal switch assembly. Capacitor voltage is low to insure long condenser life. Large bronze sleeve bearings and increased oil capacity provide

longer bearing life. End-play controlled by resilient thrust washers. Simplicity of design enables easy part replacement.

Circle No. 166 on Reader Service Card

Bench-Type Test Chamber

Product: Webber high-low temperature bench-type test chamber.

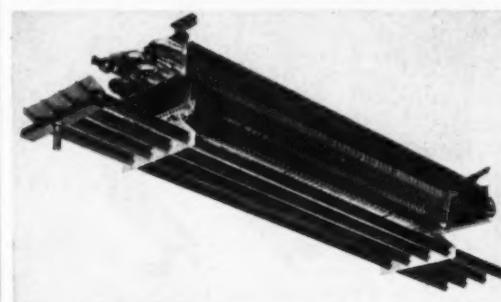
Manufacturer: Industrial Freezer Div., Webber Mfg. Co., Inc., Indianapolis, Ind.

Features: On standard unit,

"time for a change!"

to
TENNEYAIRE JR. PANS
and

COIL AND PAN COMBINATIONS



1. Copper-welded connections. 2. Super-sensitive fins. 3. Electro-tin-plated tubing. 4. Mechanically molded bond of faceted fin to tube. 5. Specially designed louvers of new aluminum alloy. 6. Scientifically placed louvers for improved air circulation. 7. Louvers temperature-equalized to prevent dripping. 8. Adjustable spring hangers for quick, easy installation and cleaning.

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showcases,
dairy boxes,
butcher and
delicatessen cases,
top display,
single-duty, and
double-duty.

For better satisfied customers —switch to the TENNEY line. You'll use the most efficient and durable Fans, and Coil and Pan Combinations, products of sound engineering and quality construction. That's why, for every standard or special installation need, don't take just any...specify TENNEY!

Tenney's advanced engineering and manufacturing facilities can handle any and every refrigeration problem. Tell us yours and we'll show you how a Tenney unit will solve it.

Tenney Engineering, Inc.
Dept. F, 26 Ave. B
Newark, N. J.

CASE LENGTH	S.T.D. IN 30° 2" D	IN OF TUBES PER COIL	COIL & PAN MODEL		DEPTH	OVERALL DIMENSIONS IN INCHES	WIDTH	LENGTH
			IN	MM				
4'	330	8	410	104	7 $\frac{1}{2}$	7 $\frac{1}{2}$	36	36
	445	8	418	105	7 $\frac{1}{2}$	7 $\frac{1}{2}$	36	36
	375	10	410	75	9 $\frac{1}{2}$	9 $\frac{1}{2}$	36	36
5'	330	8	516	130	7 $\frac{1}{2}$	7 $\frac{1}{2}$	48	48
	495	8	516	130	9 $\frac{1}{2}$	9 $\frac{1}{2}$	48	48
	565	10	510	75	9 $\frac{1}{2}$	9 $\frac{1}{2}$	48	48
6'	495	6	516	75	7 $\frac{1}{2}$	7 $\frac{1}{2}$	60	60
	600	6	516	75	7 $\frac{1}{2}$	7 $\frac{1}{2}$	60	60
10'	3860	10	13210	335	9 $\frac{1}{2}$	9 $\frac{1}{2}$	123	123

TENNEY JUNIOR COIL & PAN COMBINATIONS (TOP COIL COMBINATIONS ONLY)								
TENNEY JUNIOR COIL & PAN COMBINATIONS FOR DAIRY WALL CASES								
6'	1895	10	W10	8 $\frac{1}{2}$	11 $\frac{1}{2}$	60		
8'	2320	10	W10	8 $\frac{1}{2}$	11 $\frac{1}{2}$	60		
10'	3775	10	W10	8 $\frac{1}{2}$	11 $\frac{1}{2}$	105		
12'	4730	10	W10	8 $\frac{1}{2}$	11 $\frac{1}{2}$	123		

A complete range of standard sizes. Special sizes built to order.



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ENGINEERING, INCORPORATED

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Engineers and Manufacturers of Automatic Temperature, Humidity and Pressure Control Equipment

Circle No. 78 on Reader Service Card

temperatures range from -80 to 185 F. Rapid pull-down to -80 F possible within 30 minutes. Chamber is 12 x 12 x 12". Overall dimensions are 50" long, 26" high, 20" deep. Equipped with air-cooled compressors, unit operates quietly. Stainless steel cabinet. Reverse cycle refrigeration produces heat, eliminating hazards associated with open heating elements. Blower assures even temperature distribution, greater testing accuracy. Illustrated door is latch-type. Provides for complete removal of door from cabinet



for use of a mounting board fixed to the back of the door on which component parts may be mounted for testing. Holes may be drilled through door to provide for electrical connections. Hinge-type door

available. Optional equipment includes electrical terminals, shelves, automatic temperature cycling and recording instruments. Same model available at temperatures from -100 to 250 F without change in cabinet size.

Circle No. 167 on Reader Service Card

Ice Cube Machine

Product: Scotsman Super Cuber Model SC-200 ice cube machine.

Manufacturer: American Gas Machine Co., Div. of Queen Stove Works, Inc., Albert Lea, Minn.

Features: Completely automatic unit turns itself on and off. Patented freezing mechanism has no moving



Yes, Sir, too many repeat calls can put you out of business, too!!

Use "Supco* 88" for preventive maintenance and cut call backs on all installations by as much as 88%.

Tested by the New York Testing Laboratory . . . "Supco* 88" was shown to cut down friction by 46.7%! And don't forget it's usually friction that causes breakdowns and means call backs. But that's not all . . . There are other things you should know about "Supco* 88"—results have shown high standards in B.T.U. efficiency and good performance in current consumption—even on brand new

units—Also its highly penetrating film prevents the formation of carbon sludge deposits on bearing surfaces and will increase the film strength and, oh yes, "Supco* 88" will also remove any deposits of carbon and sludge if they have already formed, thereby eliminating the necessity of complete overhauls.

There are ten more things about "Supco* 88" that means efficiency and darn few call backs . . . If any. Try it and be convinced.

Write for more information about this remarkable oil additive.



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parts to wear out, no complicated controls. Provides slow melting, solid-no holes, completely finished off, uniform ice cubes. Low water and power consumption. No water is reused. Easily installed. Sealed insulation assures maximum efficiency. Capacity of 225 lbs. or 2800 ice cubes daily. Cubes stored in heavily insulated, stainless steel storage bin.

Circle No. 168 on Reader Service Card

Upright Freezers

Product: Two sizes of upright freezers.

Manufacturer: La Crosse Cooler Co., La Crosse, Wis.

Features: Available in capacities of either 19 or 27 cu. ft. Models available with or without inner doors. Units contain 1/3-hp sealed Tecumseh condensing unit with optional 5-year warranty plan. All-steel construction throughout.

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These are the pumps for your cooling tower or evaporative condenser installations! For your convenience, a stock of most commonly used sizes is maintained at the factory—ready for immediate shipment.

The leak-proof "Remite" Mechanical Seal alone makes these pumps a *buy*! This new-type Seal is harder than glass—wear-proof, corrosion-resistant. It's self-lubricating and eliminates the usual leakage through the packing gland—assures trouble-free operation.

Smooth running . . . quiet!

Oversize bearings hold the shaft in alignment for smooth, quiet performance... balancing of the impeller prevents shaft vibration and seal failure. All parts are machined to rigid specifications, carefully inspected and assembled—assurance of minimum installation and maintenance expense. B & G Series 1522 and 1531 Pumps kept in stock at the factory are bronze-fitted only, but are available as all-iron, all-bronze or stainless steel units.

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Circle No. 80 on Reader Service Card

and AIR CONDITIONING • JULY, 1953

CHILLED WATER...

Continued from page 75

the condensing water, which is relatively warm, be put to secondary use. It may be used by the owner to feed an automatic sprinkler system, to feed his garden hose, or to supply water to an ornamental fountain. One enterprising individual, who happens to be an experienced air conditioning engineer, keeps a small swimming pool behind his residence comfortable at

all times with water from the condensing side of his air conditioning system.

In areas where supply of water is a problem, or where it is excessive in cost, the condensing water can be run through a cooling tower or evaporative condenser and returned to the system. Cost and location of this extra equipment is always a problem in residential work, and for this reason we will discuss the application of air cooled residential systems in a future issue.

From the above discussion it

should become apparent that the successful heating and air conditioning contractor will select the type of cooling equipment that is suited for the residence under consideration.

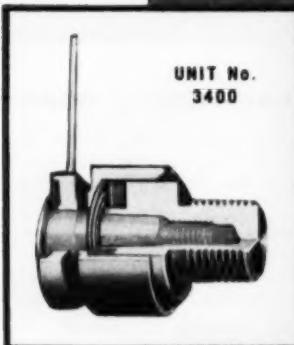
The chilled water system is ideal for the hot water job with convectors, and is quickly and easily installed in connection with a warm air heating system. At the same time, a "packaged" direct expansion unit of the correct capacity may be installed in connection with many warm air systems with no difficulty.

For this reason, all air conditioning salesmen should be warned to make a complete survey (particularly in an existing residence) so that the contractor's engineer or estimator will have a fair chance to select the most economical and the most satisfactory equipment.

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Replacement Units

The original precision-built replacements for Commercial, Semi-Commercial, Air Conditioning and Home Refrigerator Compressors . . . Proven by outstanding performance for over 23 years!



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SERVICE SLANTS...

Continued from page 73

at the same angular position as well as lengthwise on the shaft. Some fans require lubrication and bearings should always be inspected for wear.

Often noise will be due to faulty installation and occur entirely outside the conditioner. Loose window glass, weather stripping or sash may vibrate, causing noises difficult to distinguish from internal noises. These can be eliminated by careful attention to rubber and felt stripping and caulking.

Odors: Users often complain of odors which are imaginary or come from outside sources. Every serviceman knows how difficult it is to convince the user that the refrigerant is practically odorless and that a leak would soon be evidenced by little or no cooling.

Odors that do develop in air conditioners are usually due to excessive heating of some parts, or wiring or slipping belts in older models. Inspection will quickly reveal which parts, if any, require replacement or repair.

A thorough cleaning will usually remove any real odors. The user should be instructed to close the outside air dampers when odors may be present outside. Filters

should be replaced on all odor complaints.

Blowing fuses or overload protection: This most annoying complaint is usually due to low voltage, overload protection below the conditioner's ampere rating, or other equipment on the same circuit.

Low voltage is usually due to resistance of the branch circuit to which the conditioner is connected. Many receptacles in residences are connected through No. 14 wire which, on a long run, at the starting current required by air conditioners, may pull the voltage too low for proper starting.

Manufacturers' data should be obtained, showing the minimum

THE 2,000,000 Americans who work nights and sleep days are the target of a special room air conditioner campaign started by RCA Victor. The number of nightworkers is higher than at any time since World War II, the company said, and nightworkers, especially in the summertime, need room air conditioners for a good day's sleep.

The campaign was started in Birmingham and Pittsburgh. These cities were chosen to "kick-off" the campaign because both have a number of steel mills, airplane factories, and other industries working "round-the-clock" on defense production.

The management of many of the defense industries are convinced that the installation of room air conditioners in the homes of nightworkers will step-up their efficiency, according to W. F. Carolan, general sales manager of the air conditioning department of RCA Victor. Several of the companies are even enclosing letters in the pay envelopes of the night shifts, recommending the use of air conditioners.

voltage at which the equipment will operate properly. Unless this voltage is available at the receptacle while starting, a special circuit should be run for the conditioner. Lighting or other load on the circuit will also reduce the voltage.

Belt driven compressors on older conditioners are sometimes pumped down during the winter, in order not to have the seal stick or leak. The compressor is pumped to slightly above atmospheric pressure with suction valve closed. The discharge valve is closed after stopping.

Before start up, all parts requiring lubrication should be oiled, the entire unit thoroughly cleaned, and

filters replaced if not cleanable. Compressor valves should be opened and the entire assembly checked for leaks.

For hermetically sealed units, the procedure is about the same except that pump down is not required.

Some service contractors offer periodic inspection and maintenance service at a monthly charge. If parts and labor are included, it is most important that the contractor be assured of parts by the manufacturer, else it might be impossible to fulfill the terms of the

contract. The contractor must also have enough experience and service records to be able to make a reasonable estimate.

Responsible contractors sometimes offer skilled inspection service for a regular fee, and labor and parts at a special rate for users having such service. Full maintenance is usually by arrangement with the manufacturer.

**BUY FROM YOUR
REFRIGERATION WHOLESALER**

THE MOST ADVANCED FILTER-DRIER EVER DEVELOPED

REMCO'S SUPER-FLO with Molded Remcal Drying and Fiberglas Depth Filtering

CHECK THESE ADVANTAGES AGAINST ANY OTHER LIQUID LINE FILTER-DRIER

AMAZING PRICE: Check SUPER-FLO'S price, for both original equipment and replacement, against ordinary driers which do not have massive depth filters, molded drying elements, and spun-end copper shells.

DEPTH FILTERING: A massive fiberglas bag, with unsurpassed depth filtering efficiency, to remove unprecedented quantities of even the most minute foreign particles.

MOLDED DRYING: The famous molded Remcal drying element, field-proven most effective for permanent refrigerant drying, even at liquid-line temperatures. Strong, stable, won't powder.

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METHYL CHLORIDE • SULFUR DIOXIDE

Distributor of "Kinetic" Chemicals' "Freon" refrigerants

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All-Purpose Valve

0 to 1½-ton Freon 12.
Pressure limit range,
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THE Model 209 is the most versatile expansion valve ever offered to the trade. It will take care of *any* type of application — low, medium or high temperatures, *any* superheat and *any* pressure limit. Just think what this adaptability means to you. No wonder alert jobbers all over the nation stock and recommend A-P valves.

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ANY APPLICATION

A-P liquid charge makes the 209 a universal valve. Ideal for low temperature, commercial or air conditioning uses.

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Quick and easy adjustment. Any setting from 0° to 20° F . . . closest control at all temperatures.

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Functions perfectly in any position — upside down . . . any angle . . . even where valve is installed lower than bulb.

ANY AMBIENT TEMPERATURE

A-P liquid charge allows mounting valve and capillary in any ambient temperature . . . with perfect control assured.



The Reds Broke Through

*Marine S/Sgt.
Archie Van Winkle
Medal of Honor*



ATTACKING IN DARKNESS, a superior Red force had smashed through B Company's defense line, near Sudong. Staff Sergeant (now Second Lieutenant) Van Winkle's platoon lay pinned under murderous fire. The entire Company faced destruction.

Passing a command through his platoon, the sergeant leaped from cover, led a desperate rush against the enemy. A bullet shattered his left elbow, but he kept going. The left-flank squad got separated. Sergeant Van Winkle dashed 40 yards through heavy fire to bring it in. An exploding grenade seriously wounded his chest. Still, lying on the ground, he continued to direct the fighting.

Finally he was evacuated, unconscious from loss of blood; but the breakthrough had been plugged, the Company saved.

"I found out firsthand," says Sergeant Van Winkle, "that the Reds respect only one thing—strength. But America has plenty, thanks to our armed forces who serve in the field—and good citizens at home who invest in our country's Defense Bonds! I believe in Bonds—as savings to protect my family and as strength to protect my country. I own them—and I hope you do, too!"

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Now E Bonds pay 3%! Now, improved Series E Bonds start paying interest after 6 months. And average 3% interest, compounded semiannually when held to maturity. Also, all *maturing* E Bonds automatically go on earning—at the new rate—for 10 more years. Start investing in Series E Bonds through the Payroll Savings Plan; you can sign up to save as little as \$2.00 a payday if you wish.



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